A CAHNERS PUBLICATION

FEBRUARY, 1961/75c

Brick & Clay RECORD

...e South's Only Basic Refractories Plant, the $12 Million H. K. Porter Pascagoula, Miss., Works—Page 40

Prefiring—What Are the Problems and Benefits

Packaging—Two Men Package Plant's Output

Selling—Maintain Good Dealer Relations

Year after Year, McArthur Brick Produces "Quantity and Quality" with BONNOT DRY PANS, EXTRUDER AND CUTTER

Today more than ever before, Bonnot equipment is being called on to protect product reputation and clay plant profits. For example:

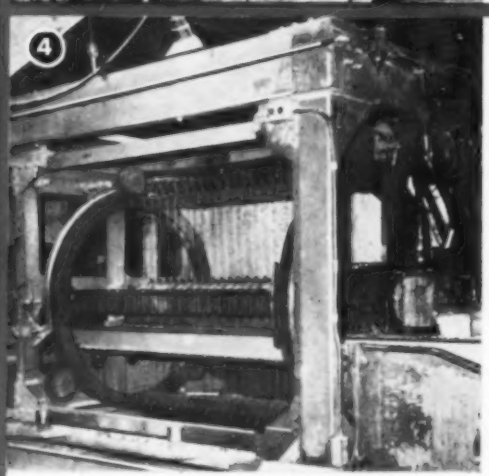
At the McArthur Brick Co. (McArthur, Ohio) a pair of ***9' Bonnot Dry Pans*** have provided ***continuous, economical grinding*** since 1905 . . . handling more than ***3,000,000 TONS*** of clay.

Processing 300 TONS of clay per shift, Production Superintendent Bud Sharp declares that ***minimum maintenance*** is another ***big advantage*** of the ***Bonnot Greyhound Extruder,*** put in operation by his father in 1948.

Rounding out McArthur's Bonnot equipment is the ***Hydraulic Rotary Cutter*** that ***"delivers 13,000 accurately-cut brick per hour*** without crowding at all. It's really built rigid . . . an extra good production machine because you don't have to change reels," declares Supt. Sharp. Advanced design has the carriage suspended from an elevated frame. This means wearing parts stay cleaner and last longer because they're out of sand and dirt.

❶ McArthur Assistant Manager Harry Hamilton (left) and Production Superintendent Bud Sharp (right) report "veteran" Bonnot Dry Pans **meet all the demands of a modern feeder system for the brick machine.**

❷ Bonnot Greyhound matches year-after-year economies of dry pans, with **"operating dependability that reduces down time and so keeps the production line moving and workers happy."**



❸ Big brick, or regular size, the Bonnot Hydraulic Cutter assures **"fast, straight cuts . . . even on "SCR" and Norman Brick, and it's built to keep going when other cutters wear out after only 3 or 4 years."**

❹ **Compact to conserve space—designed to conserve time and materials**—the Bonnot Hydraulic Rotary Cutter can be engineered to "quantity and quality" requirements in your plant.

For brick, tile, refractories . . . for grinding, mixing and forming clay and cutting . . . Bonnot engineers will give prompt attention to your inquiry.

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HAMMER MILLS
DRY PANS
WET PANS
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FEEDERS

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SPECIAL MACHINES TO ORDER
DIRECT FOUNDRY SERVICE

CUTTERS
REPRESSES
DIES
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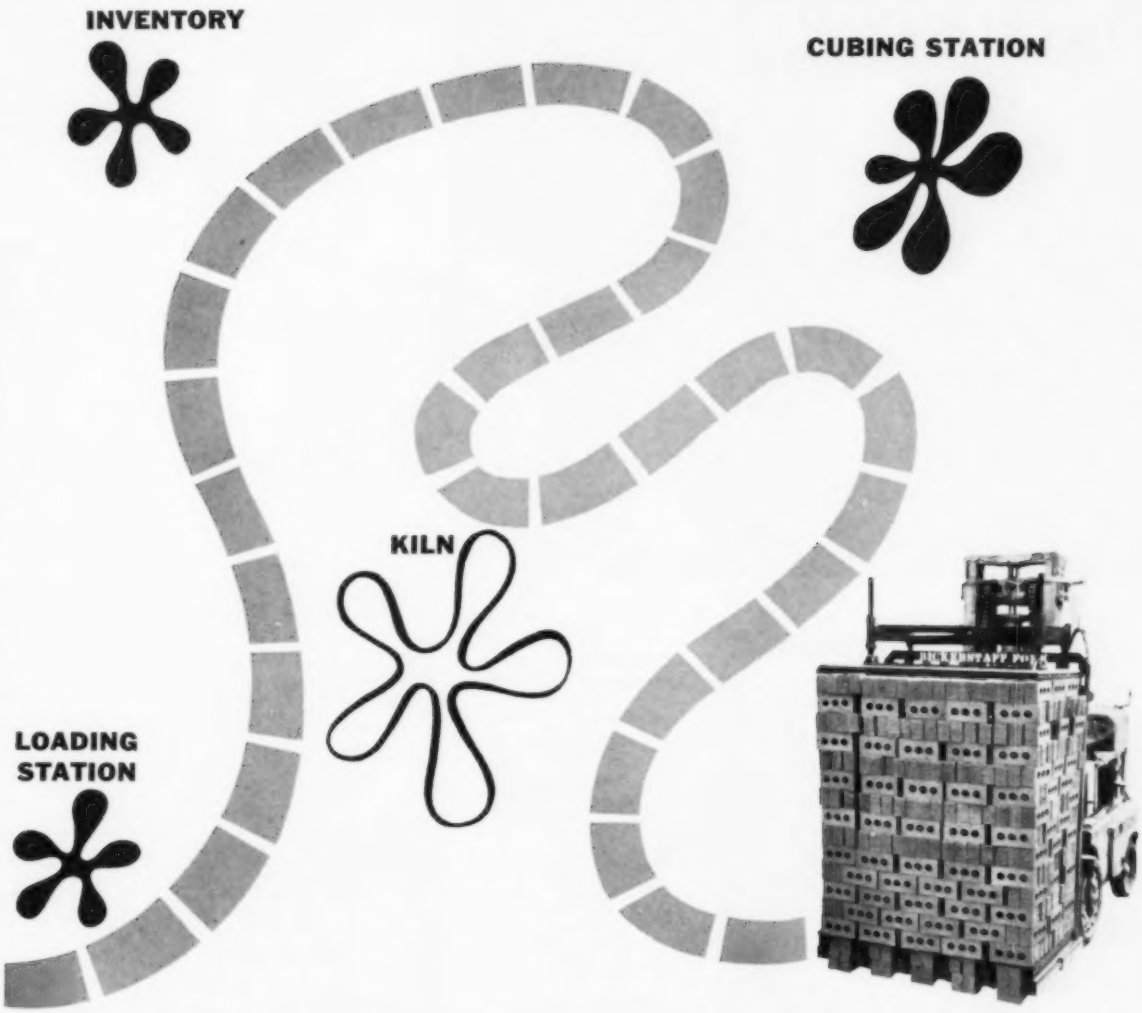
STEP AHEAD WITH BONNOT



a Bickerstaff Brick Fork Finds Profits

Everytime you pick-up a package of brick with a Bickerstaff Fork - you "up your profits". That's what it's supposed to do! And, it does a thorough job no matter where you put it to work. Moves brick in and out of inventory, sets and draws kilns and loads direct to truck and freight car!

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←Circle Service No. 1

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REDUCE MAN HOURS
INCREASE PROFITS

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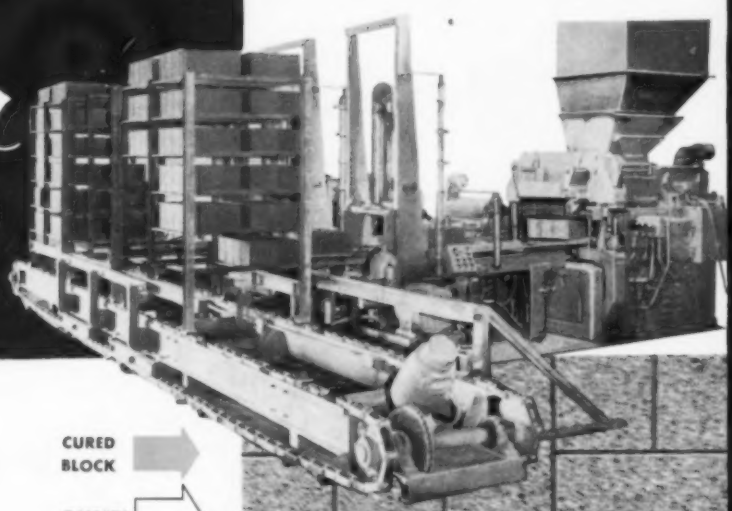
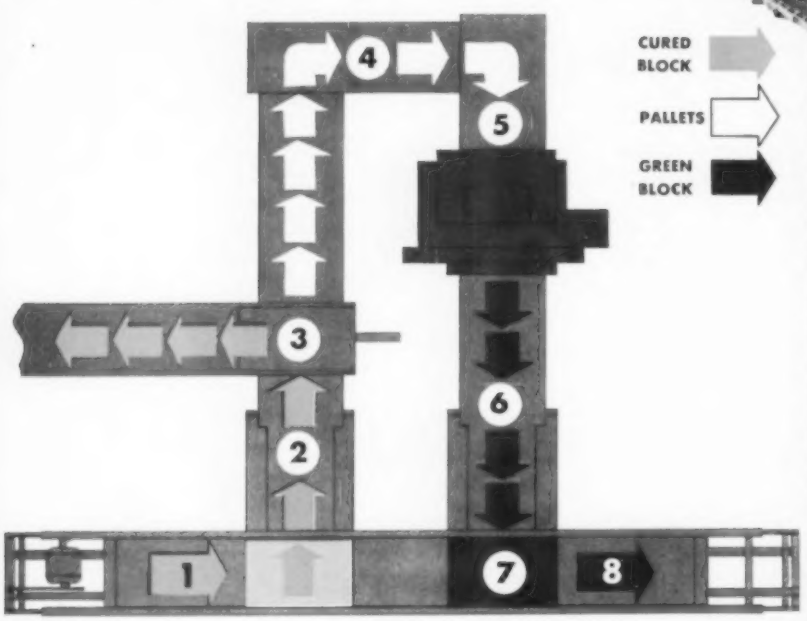
AUTOMATIC LOADER AND UNLOADER

The Columbia Automatic Loader and Unloader fits all Columbia machines and is readily adaptable to all others. It brings automation to the production of concrete block. The complete operation can be tended by the cuber and lift truck operator.





The entire operation is continuous and completely automatic . . . saves time, saves labor and increases production.

Your nearest Columbia representative can give you full information . . . write, wire or phone.

1. Cured blocks in racks are placed on the Automatic Rack Loader and Unloader.
2. Cured blocks are automatically unloaded from the racks and placed on a conveyor.
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4. Pallets are moved onto an automatic cleaning, burnishing and oiling process.
5. Clean pallets are deposited in a pallet magazine for automatic feeding to the block machine.
6. Green blocks are automatically conveyed to Automatic Loader.
7. Blocks are automatically loaded into racks, eliminating all manual offbearing.
8. Full racks then move to the end of the Loader and Unloader, in position to be picked up by the fork truck for curing.

Columbia MACHINE

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THIS MONTH'S COVER

The sparkling birdseye view on this month's cover shows the only basic refractories plant in the south, the $12 million H. K. Porter works at Pascagoula, Miss. Beginning on page 40 of this issue, you will find a detailed description of this plant in words and six pages of pictures.

A CAHNERS PUBLICATION

Brick & Clay RECORD

Contents for February, 1961 • Vol. 138, No. 2

40 Invest $12 Million in South's First Basic Refractories Plant

BRICK & CLAY RECORD takes you on a picture tour of the H. K. Porter plant at Pascagoula, Miss. Flow charts and descriptive text complete a brilliant description of an outstanding operation. Also see news of refractories on page 39.

46 Calcining Cuts Density, Maintains Brick Strength

To clarify the confusion in the industry regarding the need for prefiring, BRICK & CLAY RECORD editors review the process being used at West Brothers Brick Co., Washington, D. C. We report the hows, whys and benefits of prefiring a clay product.

48 Two Men Package Entire Production of Plant

Palletization and a well designed strapping station make short work of packaging at H. K. Porter's Pascagoula, Miss., plant. Actually, the two men can strap even faster than they now do but the fork truck driver cannot keep up with the faster pace.

50 Three Basic Factors in Kiln Firing

Another in the series on firing heavy clay products by George Seanor. The factors discussed are the generation of the proper volume of kiln gases, providing proper temperature in the kiln gases at the right time and applying the kiln gases uniformly to all brick in the kiln at the proper temperature.

52 Support Your Dealers and They'll Produce for You

The forces that motivate salesmen and move goods are basically the same, no matter what the product. For the clay product producer, good dealer relations rank among the most important phases of the operation.

54 Should You Buy a Truck—Or Lease One?

Here is a question receiving increased attention from manufacturers as the trend toward leasing motor vehicles gains momentum. All the pros and cons for both systems are discussed here.

Departments

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Leading Clay Journal of The World
Established 1892; Now in 68th Year

The magazine of brick, drain tile, structural tile, clay aggregate, terra cotta, roofing tile, refractories, clay pipe, and abrasives.

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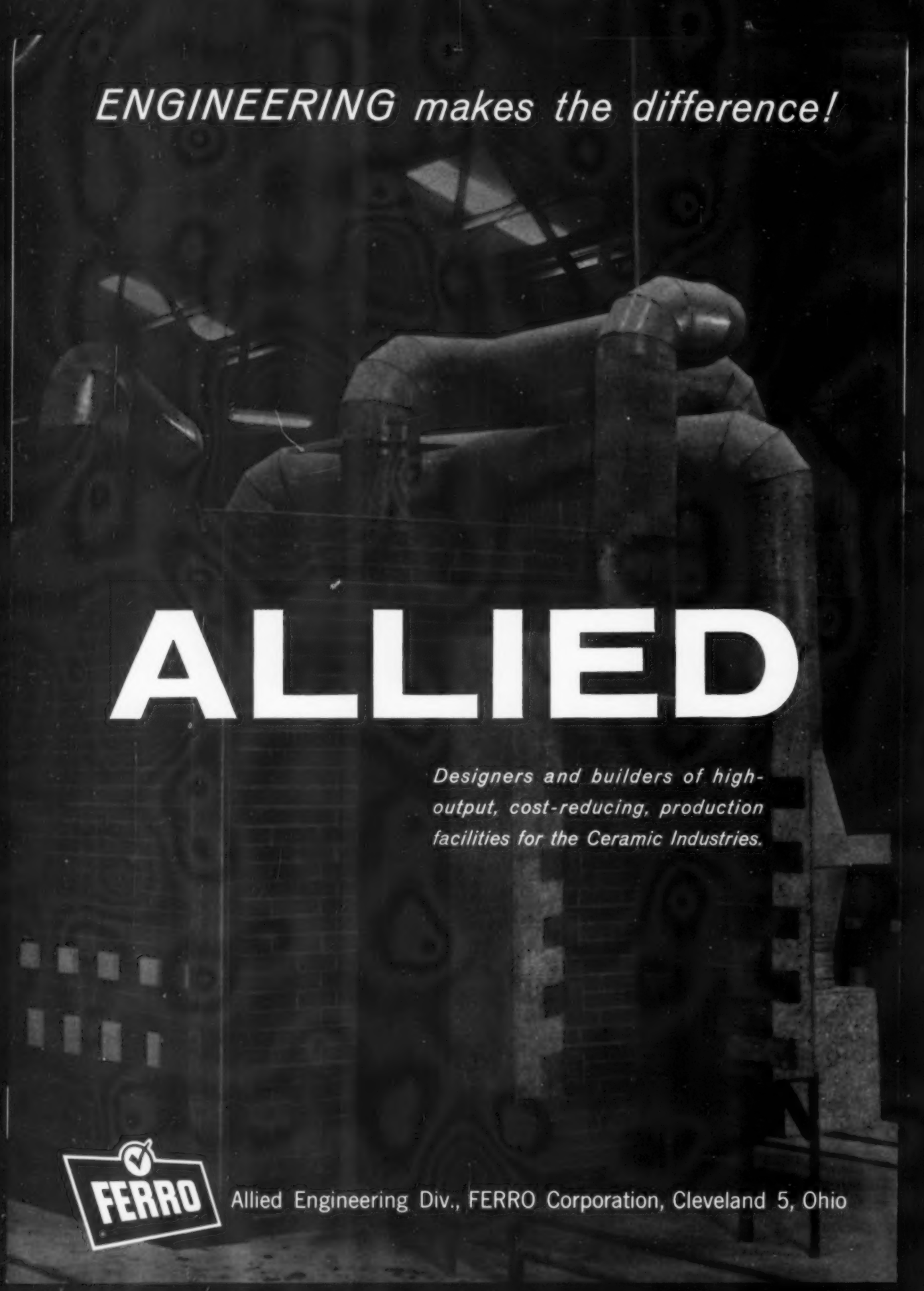
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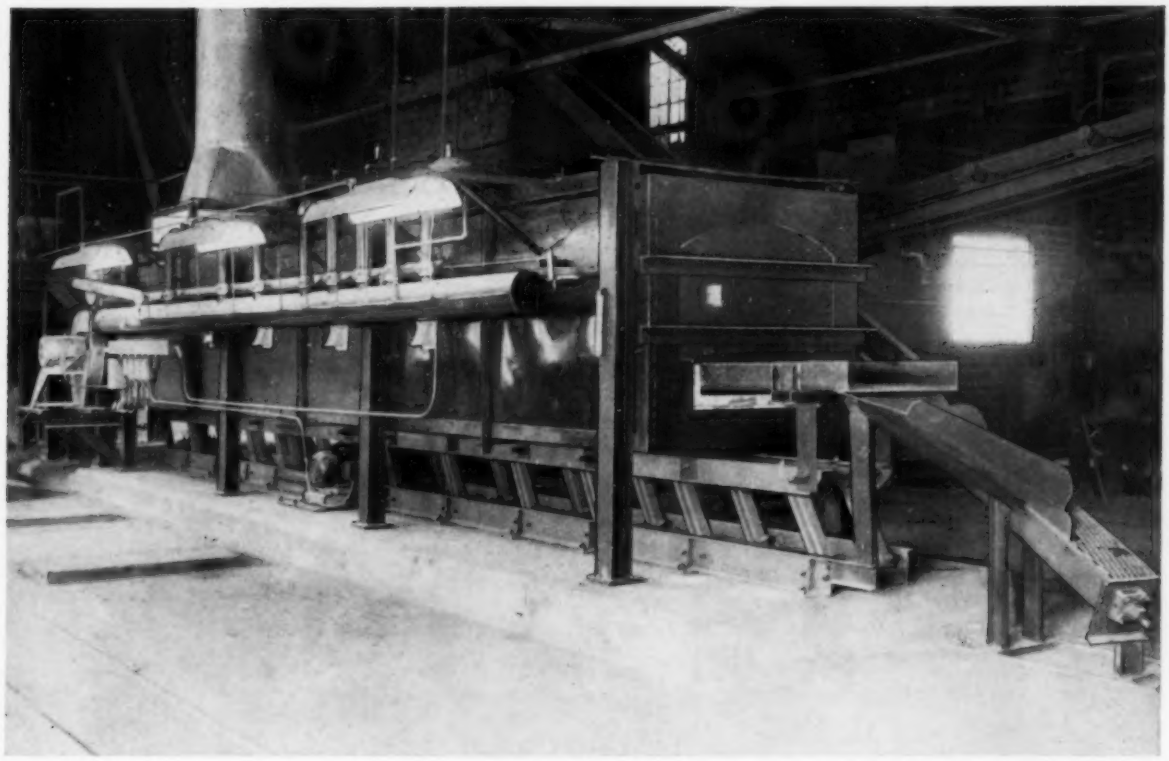

Miller Calcining Furnace installed at West Brothers Brick Co., Washington, D.C. Prefires raw materials and cuts density of brick in both green and fired states.

PROBLEM:

Needed—A Low Cost Method For Treating Wet, Sticky, Carbonaceous Material That Produces Excessively Dense Ware With High Shrinkage.

SOLUTION:

Calcine The Material In A Miller Vibrating Hearth Calcining Furnace.

The Miller Calcining Furnace fires up to 5 tons of wet, ground material per hour and produces a fine-grained, calcined material that will contribute to higher quality ware. It removes water, carbon and other combustibles from the raw material. The Miller Vibrating Hearth Calcining Furnace operates in a temperature range from 1200 to 2000 degrees fahrenheit.

Brick produced from material that has been fired in a Miller Calcining Furnace are less dense in the green stage, dry faster, have more complete oxidation, are free of glass and cooling cracks, and they are of a more uniform size.

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Circle Service No. 5

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Kiln door and firebox arches constructed (or repaired) with refractory concrete will not sag or spall due to thermal shock . . . will stand up under kiln temperatures to 2600° F. This helps reduce shutdowns for repairs and maintenance and increases kiln output.

Installation is economical, too. Refractory concrete arches, made with LUMNITE calcium-aluminate cement and aggregates, can be cast in place or precast in any size or shape. No skilled labor is required and concrete will reach service strength in 24 hours.

Other uses of refractory concrete in brick and clay plants include door linings, flues, car tops, crown insulation. For convenience, castables containing LUMNITE cement are available from leading manufacturers of refractories. These are packaged mixtures, ready to use. Simply add water, mix and place. For more information, write Universal Atlas Cement, 100 Park Avenue, New York 17, N. Y.

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Circle Service No. 6

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- **DUAL VOLTAGE 220/440/550 volt**
- **3 PHASE on larger models**
- **5-YEAR GUARANTEE**
- **ANTI-MAGNETIC SIDE RAILS Either type as shown below**

- **DUST-TIGHT**
- **WATERPROOF**
- **COMPACT, RUGGED CONSTRUCTION**
- **SCREEN CLOTH INSULATION On both sides for complete protection**

Pat. Appl. for

Flux Power Eliminates Z-Bar Connectors
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This major break-through by HANCO ENGINEERS OFFERS OPTIMUM EFFICIENCY in screening and sizing of moist materials. Replacement of cables and laminated flexible conductors is eliminated.

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Circle Service No. 7

Put the EARNING POWER of a **UNIT** in your pit

This one does a man-sized job — has real muscle and speed to give you the power, capacity and output you require to make a profit from your pit operation. UNIT shovels and draglines are dependable producers, whether digging, loading, stockpiling, or dredging. Low original, operating and maintenance costs, *plus* reliable production, mean you *earn more* with a UNIT from each ton of material moved. ■ Here are some important reasons why UNIT is your most profitable choice for an efficient, cost saving excavator. ■ The exclusive, one-piece cast gear case (there's nothing else like it) keeps machinery in perfect alignment and seals out all dirt and moisture for virtually maintenance-free operation. ■ Straight-in-line mounting of the engine and main machinery contributes to the low operating cost by eliminating many wearing parts, reducing friction loss, and harnessing every bit of horsepower. A worm drive transmits the power smoothly — features an efficient, one-step reduction from engine speed to the main machinery. ■ Disc clutches wear evenly for longer life and their smoother operation reduces load shock on the entire power train. ■ Automatic traction brakes provide an instantaneous traction lock on steep grades . . . are quickly serviced because split brake drums allow linings to slide in or out without completely dismantling brake shoes or drums. ■ Your factory-trained UNIT dealer has full information on the complete line of UNIT ½-yd., ⅝-yd. and ¾-yd. excavators. Call him *now* for detailed specifications and price information.

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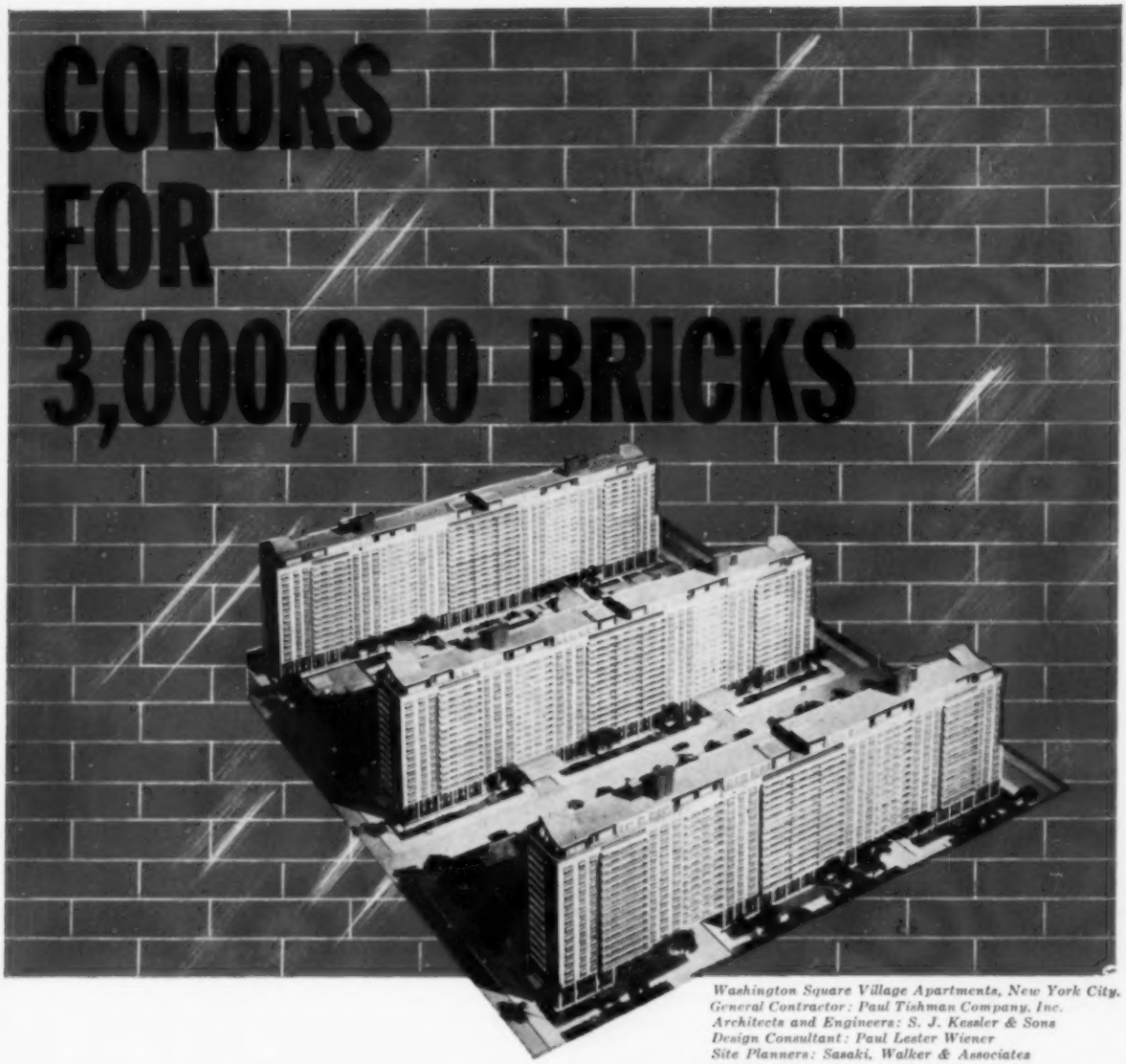

Washington Square Village Apartments, New York City.
General Contractor: Paul Tishman Company, Inc.
Architects and Engineers: S. J. Kessler & Sons
Design Consultant: Paul Lester Wiener
Site Planners: Sasaki, Walker & Associates

at New York's New Washington Square Village Apartments

Mr. Paul Tishman, builder in charge of design and construction for the development, refers to the 3 million glazed bricks in this multi-million dollar apartment project at New York City's Washington Square as "3 million pieces of fine pottery"— a worthy tribute to the manufacturer, the Binghamton Brick Company, Binghamton, N. Y.

The reds, yellows, and blues used in coloring the bricks for the bright facades of these buildings were manufactured by Drakenfeld. Research at Drakenfeld makes it now possible to offer coloring materials to suit almost any brick processing set up, and coloring methods which all brick manufacturers can use. Sand colors, engobe stains, glaze stains, colored specks, and prepared glazes are available in a wide variety of colors. To help meet unusual requirements Drakenfeld research is at your service to provide a prompt, dependable solution to your brick coloring problem. Results: beautiful, vivid colors that best meet architects' demands for color in today's building construction.

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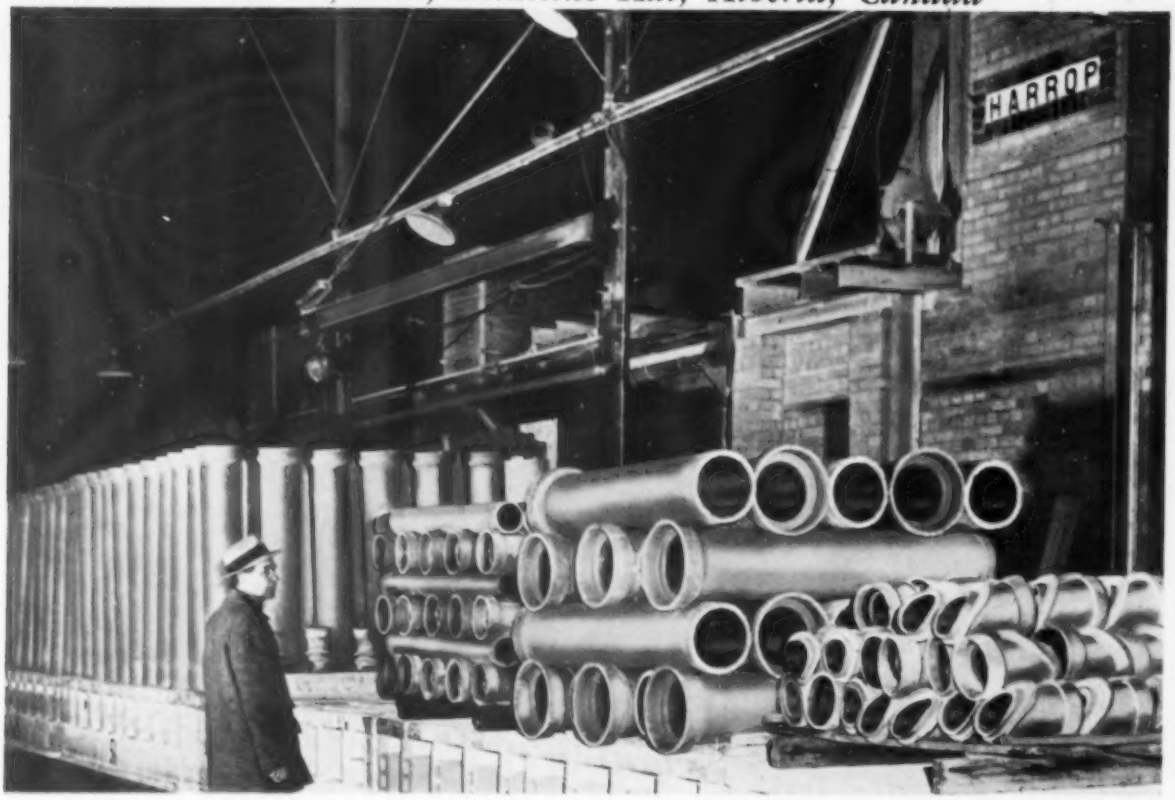
Circle Service No. 9

Unique operation dries green ware on kiln cars at Medicine Hat Brick and Tile Co., Ltd., Medicine Hat, Alberta, Canada



Harrop dryer and kiln for sewer pipe cuts cost and boosts production

"We are setting green ware on the tunnel kiln cars," explains Medicine Hat's production manager T. A. Sissons (above). "It's moved directly into our Harrop dryer, and then burned in the Harrop kiln. It speaks well for the Harrop dryer that it will handle sewer pipe direct from the press. Our system cuts out one handling, thus reduces the labor cost. And since we don't need a drying floor, our plant is the smallest in the world in relation to its capacity.

"We started using our newest Harrop installation (two earlier ones produce brick and hollow tile) by loading only one size pipe on a kiln car," Mr. Sissons continued. "Now we place smaller sizes inside and around large pipe (up to 15" diameter), thus substantially increasing the tonnage handled by our Harrop dryer and kiln."

These impressive results at Medicine Hat mean just this to you, no matter what type of ceramic ware you're producing. Skilled Harrop ceramic engineers can help you get practical answers to your drying and firing problems. Answers that will lead you to the production of higher quality ware, at economical cost. For a non-obligating consultation, write us today.

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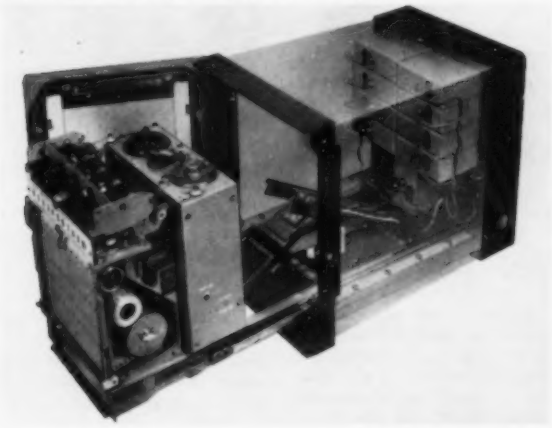
TUNNEL KILNS • DRYERS • PLANT DESIGN

Circle Service No. 10

MATERIALS & EQUIPMENT IN THE NEWS

Radically New Potentiometers Developed



Unique design features, including component interchangeability, feature ElectroniK 17 potentiometers recently introduced by Brown Instruments Division of Minneapolis-Honeywell Regulator Co. The strip chart model, showing display, drive and case modules, can be quickly converted to circular chart recorder or circular scale indicator. Drive module encloses Stranducer, which obsoletes conventional slidewire; range card and circuit board, amplifier and constant current unit. Case module houses display and drive units, drawer-type chassis permitting uninterrupted operation, wiring drawbridge, control units, power supply for control system, and terminal board. Instruments can be mounted in standard 19-inch relay rack, on a panel or bench, or made portable. *Minneapolis-Honeywell Regulator Co.*

Circle Service No. 57

Tower Hoist

A new, powerful and maneuverable construction hoist was introduced recently by this firm. Other features of this hoist are; 3,000 lbs capacity, 6'6"x5'6" platform, 30 h.p. Wisconsin, air-cooled engine, and the complete portability of the hoist. *Tubular Structures Corp. of America.*

Circle Service No. 58

Dracon Conveyor

This firm announces a new line of dracon conveyors. It is claimed that the dracon conveyors will move material much more economically than conventional conveyors. Some of the other features available with this conveyor are self cleaning, standard parts, simple installation and built to last. A wide range of sizes is available. *J. B. Ehrsam & Sons Manufacturing Co.*

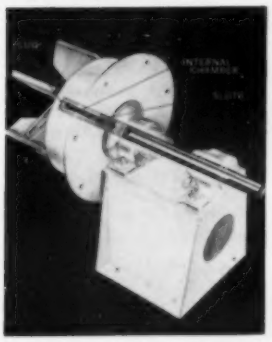
Circle Service No. 59

5-Ton Crane Excavator

This machine is a departure from standard cable-operated power crane-excavators and all hydraulic machines in that it features both cable and hydraulic operation. All lifting and digging operations are cable operated while a modern, efficient hydraulic system controls the swing.—*Schield Bantam Co.*

Circle Service No. 60

High Temperature Fans



A unique air cooled shaft which eliminates the need for water cooling heat slingers, and other complex cooling devices, is an important design feature of this firm's line of high temperature fans for ovens, kilns, furnaces, dryers, etc. *Garden City Fan & Blower Co.*

Circle Service No. 61

Checkweigher

This unit has been designed to continuously weigh and sense weight variations from a preset standard. Products weighing up to 500 lbs can be checkweighted with an accuracy of ±¼ ounce. *Thayer Scale Corp.*

Circle Service No. 62

Front End Loader

A front end loader attachment with 1¼ cu. yd. (SAE rated) capacity is now being offered for the Kwik-Mix Hi-Lifter.

The front end loader attachment digs 94" wide, has 8½ ft. dumping height, 40° bucket roll back at ground level, 50° at dumping height, and 9,000 lbs. breakout force. Maximum lifting capacity is 8,500 lbs. *Kwik-Mix Co.*

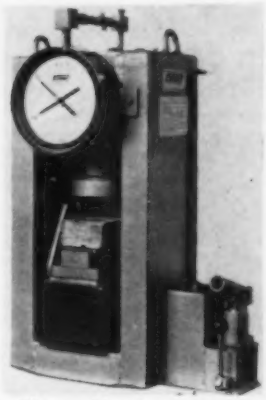
Circle Service No. 63

Combustion Indicator

The Qual-O-Rimeter Combustion Indicator—a new instrument which accurately indicates changes in flame characteristics caused by variations in gas fuel supply and air/gas mixture—was announced by this firm. *Selas Corp. of America.*

Circle Service No. 64

Job Site Testing Machine



The machine is said to have a capacity of 250,000 lbs, and comes equipped with two gages, one high pressure and one low pressure. This model (Model FT-20) is an extremely versatile plant and jobsite testing machine for testing brick in flexure and compression. *Forney Inc.*

Circle Service No. 65

Crawler Tractor

This new production Crawler features a 301 cu. in. Case built engine; is equipped with the

(*Continued on page* 14)

(*Continued from page* 13)

exclusive Terromatic transmission and a load sensing torque converter that produces up to 23,000 lbs. push-pull effort. Split second power shifting, effortless power steering and independent power control of each track are also featured in this new machine.—*J. I. Case Co.*

Circle Service No. 66

Flux Power System

Electric screen heaters developed by this firm conduct 0-4,00 amperes through the air. Damp, sticky materials it is claimed can now be screened with the lowest possible operating costs. *Hannon Electric Co.*

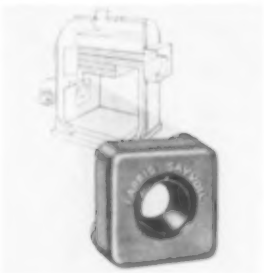
Circle Service No. 67

Reversible Belt Splice

Conveyor installations using belts manufactured entirely of an interwoven carcass may now be spliced with this new modern reversible belt splice.—*General Splice Corp.*

Circle Service No. 68

Burner Fuel Economizer



A new burner mounted fuel economizer which it is claimed can reduce fuel oil costs up to 25% and practically eliminate smoke, is now available from this company.

This low cost unit, known as the Sayvoil, injects an envelope of preheated air (up to 875°F.) around the atomized oil burner flame to produce more rapid combustion and more complete burning of fuel. *Farris Combustion Controls Corp.*

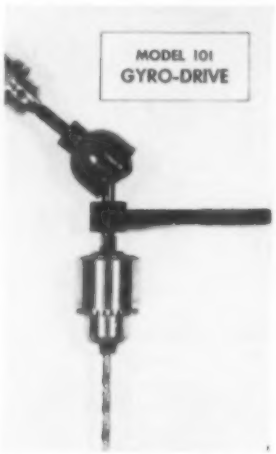
Circle Service No. 69

Fork-Lift Tractor

A new, heavy-duty, four-wheel drive fork-lift tractor with 6,000 lbs. capacity at 24" load center and 14-ft maximum stacking height has been announced by this company. *Frank G. Hough Co.*

Circle Service No. 70

Gyro-Drive



This drive converts any power drill into a variable angle tool, drills in the tightest cramped quarters and literally reaches around corners, works safely and firmly at full-power with no bulky gear-box to install or handle. It measures less than 6 inches overall and weighs approximately 12 ounces. Gyro-Drive fits all models of power drills, ¼ in. or ½ in. capacities, and may be permanently installed on the drill with a special adaptor. *Glenwood Gyro-Drive, Inc.*

Circle Service No. 71

Heated Screen

This machine is designed for use, either as conventional unheated, high frequency screen or as an electrically heated unit. It is offered in one or two decks, with either or both decks heated.

Latest type, extruded aluminum side rails provide for uniform mesh tension and even distribution of heat over the entire screen mesh area. *Universal Vibrating Screen Co.*

Circle Service No. 72

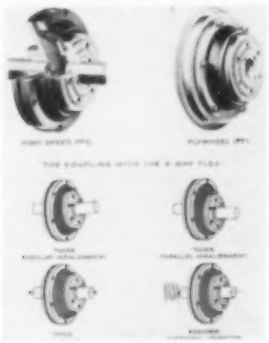
Two-Way Level

This firm is introducing a new two-way builders level, the Lok Level, that plumbs two surfaces at once, offering considerable savings in time and labor. In addition to plumbing two surfaces simultaneously, the Lok Level will also act as a facing straight edge when used in the leveling position as in brick work.

The Lok Level is available in the standard 3-foot, 4-foot, and 6-foot lengths. *Lok Products Co.*

Circle Service No. 73

Cushion Couplings



A pan-shaped rubber flexing element of entirely new design is the feature of two new cushion type couplings being introduced for high speed or high torque applications. *Dodge Manufacturing Corp.*

Circle Service No. 74

Vented Heater

This company has developed a vented heater designed to supply fume-free, odor-free heat to men working in closed areas.

Called Model 120-Vented, it can be used with a stack extension which carries all traces of fumes or odor outdoors. The stack extension does not come with the unit but is available anywhere. *Champion Heater Co.*

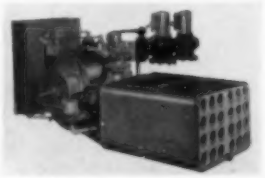
Circle Service No. 75

Reversible Glove

This glove provides four working surfaces instead of two per pair. Shown above is the same glove, first worn on the right hand, then reversed and worn on the left hand. Cromac reversible are available in men's large size in either knit wrist or band top style. *Jomac Inc.*

Circle Service No. 76

Gas Burners



The "building-block" principle of component design has been applied to a new line of automatic motorized, mechanical-draft gas burners built by this firm. *Mettler Co., Inc.*

Circle Service No. 77

Automatic Scale

This firm announces a new "Dynaprint" automatic weighing and recording scale suitable for installation in conveyor lines to record individual weights and totalize automatically. *Dynametrics Corp.*

Circle Service No. 78

Pocket Penetrometer

This pocket penetrometer is designed to be used as a field check for classifying various soil types merely by inserting this tool into the soil and measuring the resistance to penetration. *TESTlab Corp.*

Circle Service No. 79

NEW LITERATURE

Charts and Inks—List of charts and inks used for company's recorders. *Minneapolis-Honeywell Regulator Co.*
Circle Service No. 80

Clay Pipe—Case history of wedge-lock clay pipe. *Wedge-Lock Clay Pipe Manufacturers.*
Circle Service No. 81

Timing Belts—Complete catalog of company's line. *T. B. Wood's Sons Co.*
Circle Service No. 82

Silicone—Catalog on Dehydratine No. 22 silicone water repellent. *Sun Chemical Corp.*
Circle Service No. 83

Refractories—Reviews the principal brands. *Harbison-Walker Refractories Co.*
Circle Service No. 84

Crushers—Describes company's 16-50 Superior secondary crusher. *Allis-Chalmers Mfg. Co.*
Circle Service No. 85

Materials Handling—New handbook of cost cutting ideas. *Automatic Transportation Co.*
Circle Service No. 86

Safety—161 suppl, 22 describes plant safety requirements. *The North American Mfg. Co.*
Circle Service No. 87

Ceramiduct—Describing design, physical properties, application and installation. *Harry O. Donnelly Co.*
Circle Service No. 88

Equipment—Complete list of company's line of industrial equipment. *Denver Equipment Co.*
Circle Service No. 89

Instruments—How to use nuclear gauges for moisture determination. *Nuclear-Chicago Corp.*
Circle Service No. 90

Welding Wires—Featuring stainless steel. *Stoody Co.*
Circle Service No. 91

Truck Costs—*Electric Storage Battery Co.*
Circle Service No. 92

Shaft Reducers—*Link-Belt Co.*
Circle Service No. 93

Air Problems—Ways to combat air pollution problems. *Fuller Co.*
Circle Service No. 94

Masonry Saws—*Everready BrikSaw Co.*
Circle Service No. 95

Super Duty Firebrick—Bulletin No. 552 on Medal and Medal P-4 Firebrick. *J. H. France Refractories Co.*
Circle Service No. 96

Couplings—Bulletin 4100. Complete line of Steelflex couplings. *The Falk Corp.*
Circle Service No. 97

Hard-Surfacing—Engineering Data Sheet No. 55. *Weil Colmonoy Corp.*
Circle Service No. 98

Industrial Trucks—*The Prime-Mover Co.*
Circle Service No. 99

Excavators—Specifications and work ranges. *Schield Bantam Co.*
Circle Service No. 100

Ovens—Bulletin 60-E describes line of dielectric ovens. *Young Brothers Co.*
Circle Service No. 101

Burner—Data sheet on Bryant gas-fired infra-red burners. *Bryant Industrial Products Corp.*
Circle Service No. 102

Lubricants—Brochure about special new white lubricant called "No-Flame" Grease. *Bel-Ray Co.*
Circle Service No. 103

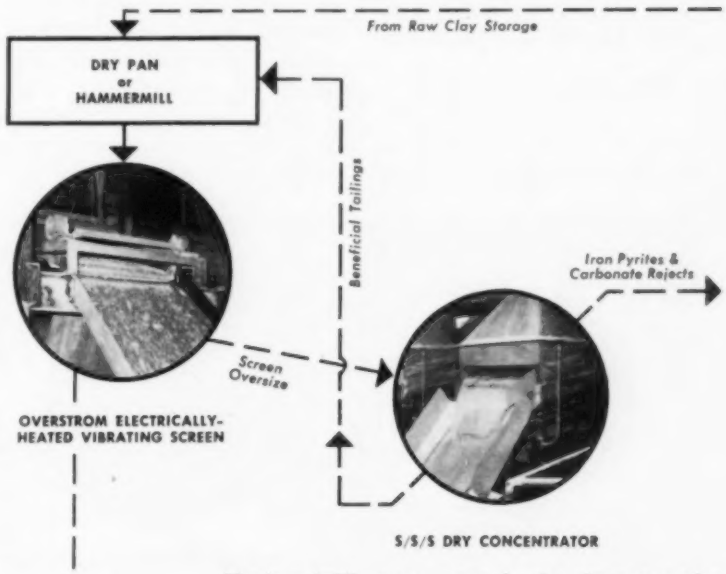
Thermocouple Wire—*Minneapolis-Honeywell Regulator Co.*
Circle Service No. 104

Crushers—Bulletin 4020. *Pennsylvania Crusher Div.*
Circle Service No. 105

OVERSTROM in....

pyrites out!

Overstrom's Beneficiation Systems—plant-tested methods for efficiently removing iron pyrites and carbonates



Here's a brilliant new team in the clay-preparation game — the familiar *Overstrom Vibrating Screen* with the time-proven *Sutton/Steele/Steele Dry Concentrator* — working *together* for the first time to help you make better brick! The typical circuit shown above will reject up to 90% of the iron pyrites in your screen tailings *continuously* — plus a big percentage of the most damaging iron carbonates.

write for descriptive literature

OVERSTROM BENEFICIATION SYSTEMS

OVERSTROM & SONS, INC. • Dallas, Texas • Alhambra, California • USA

address inquiries to: 1031 South Haskell Avenue, Dallas 23, Texas

Circle Service No. 11

CRUSHING LIGHT AND ABRASIVE MATERIALS?

Pennsylvania CDL Series Reversible Impactors offer 5 unique advantages

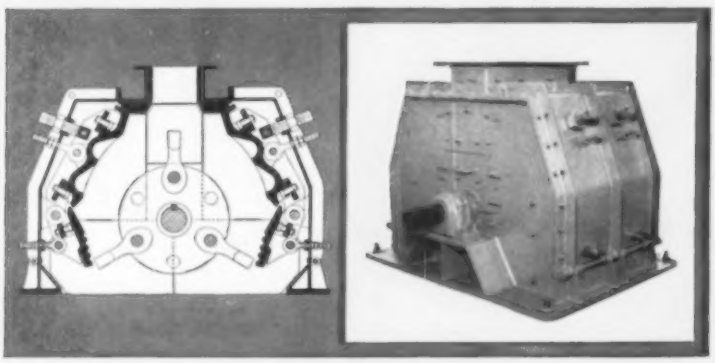
This is the crusher designed specifically for jobs where weight and ruggedness are unnecessary —such as crushing light and often abrasive materials. To plant operators with such job requirements Pennsylvania CDL Series offers:

1. Definite wear advantage accomplished by use of cast alloy steel in all hammers and breaker blocks. Side liners are of heat-treated carbon steel.

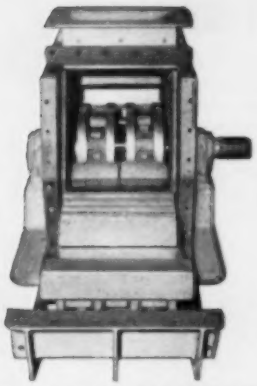
2. Adjustable upper and lower breaker blocks. In some series the upper blocks are reversible. Maximum control of circulating load and product gradation is achieved by merely moving upper and lower blocks closer to or further from the hammer circle.

3. Easy accessibility. The entire upper and lower breaker block assembly swings back, exposing the entire rotor assembly, thus holding maintenance time to a minimum.

4. Identical reduction. With breaker blocks located on both sides of the machine, and feed chute directly over center of the rotor, these units perform identical reduction when run in either direction.



• Pennsylvania CDL 7-38 Reversible Impactor



• Pennsylvania CDL 5-32 Reversible Impactor with breaker block assembly open to show easy accessibility.

5. Balanced wear. Systematic rotor reversal balances wear on both sets of breaker blocks and eliminates hand-turning of hammers—a major saving in maintenance costs for both parts and labor.

FREE BULLETIN

For full description of Pennsylvania CDL Series Impactors, as well as other Pennsylvania Reversible Impactors, write for Bulletin 6018.

PENNSYLVANIA CRUSHER DIVISION
BATH IRON WORKS CORPORATION
WEST CHESTER, PENNA.

★ ★ ★

Over 50 years' concentrated experience in all types of material reduction makes Pennsylvania your best source of crushers and engineering advice and service. Call on Pennsylvania with your next crushing problem. Representatives from coast-to-coast.

PENNSYLVANIA CRUSHERS

BATH-BUILT

Circle Service No. 12

Come to Clay Block Meeting

If you are interested in any way in lightweight clay block, you can learn more about it and contribute to the knowledge of it, by attending the Second Clay Block Conference sponsored by BRICK & CLAY RECORD.

It is our plan to set up panels of experts to answer all of your questions at the meeting, from choosing new materials to reactions from the architect—your customer.

BRICK & CLAY RECORD has been advocating that every plant manager and engineer begin experimenting with lightweighting their products. There is much basic information to be unearthed. The plasticity of the clay, how much aggregate the clay can hold, what process is best for manufacturing, should it be glazed or unglazed, what will be the cost, and how does the architect react to it.

Basic investigation will certainly reveal if the clay can stand alone or if it needs binders. The relationship of purchased aggregate to plant clays and firing ranges will be established.

After the basic work, pilot plant operations will have to be established and production problems worked out.

It's a long road to travel and the sooner every plant can get set up, the better will be their position to get into the business when management gives the green light for the diversification.

Plant managers, engineers and executives will gain a great deal from the meeting sponsored by BRICK & CLAY RECORD. Every progressive thinking man in the industry should attend.

See details on page 22.

J. J. Shea

Executive Editor

TAM RESEARCH BENEFITS TAM CUSTOMERS IN TWO WAYS...

FIRST WAY : Working through Tam Field Engineers, our Quality Control Laboratories assist TAM customers in solving day-to-day and long range problems. Our customers reading this advertisement know from experience how helpful this service can be.

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NEWS OF THE INDUSTRY

Pipe Plant Plans Told

W. J. Goodwin, Jr., president of the Goodwin Companies, Des Moines, Iowa, announced Friday the awarding of contracts for a sewer pipe manufacturing plant that will cost in excess of a million dollars. It will be located northwest of Des Moines.

The contract for a 110,000 square-foot steel covering building was awarded recently and work will begin immediately. It will house a 400-foot tunnel kiln and clay mixing and pipe forming equipment.

Electronic automation equipment for the forming and handling of the pipe will be provided by the Pearne and Lacy Co., Los Angeles, Cal.

Equipment for clay mixing and forming will be furnished by the J. C. Steele Co., Statesville, N. C.

The plant is scheduled to be in operation by early fall. There will be 60 employees.

The new plant will have a production capacity of 35,000 tons of pipe a year, and can be expanded to 50,000 tons.

The Goodwin Companies also operate the Des Moines Clay Co., and have other plants at Mason City, Redfield, Oskaloosa, Ottumwa, Fort Dodge and Centerville.

Aggregate Plant Nearing Completion

The Rocky Flats, Colo., lightweight aggregate plant of the Idealite Co. is now 75 per cent complete with the installation of a 90-ton rotary kiln. The plant is expected to be fully completed early this year and will have an annual capacity of 300,000 cubic yards of Idealite. The company recently changed its name to The Idealite Co. from Great Western Aggregates, Inc. Another plant of the company is already in operation in Laramie, Wyo.

New Silica Plant In Production

A new half-million dollar silica plant near Little Rock, Ark. has gone into production recently.

The large plant of the National Silica Co. is constructed on an 800 acre site which is estimated to contain 500 million tons of silica. The silica will be processed for glass manufacturing, foundries, the oil industry and silica flour.

The plant's equipment includes crushers and dyers which will be capable of producing 120 tons per hour when peak production is reached.

New Canadian Plant To Be Built

Hoganas of Canada, subsidiary of a Swedish firm, has been established in Toronto, Ont., to manufacture tile, brick, glazed clay pipe, fire and acid proof products from coal, clay, quartz and other materials.

Texas Brick Producer Expands Facilities

Elgin Standard Brick Manufacturing Co. will construct new expanded facilities at its Elgin, Tex. plant.

President J. K. Prewitt, in announcing the improvements, said construction will start at once on a new tunnel kiln and other companion facilities that will sharply increase production capacity for glazed brick and glazed tile.

Founded in 1907, the company today employs more than 300 people with a daily production of 350,000 brick equivalents. The plant, on the outskirts of Elgin, 24 miles from Austin, Tex., is situated on a 700 acre plot estimated to contain a 500 years' supply of fine refractory and fire clay.

Lavino Texas Plant Now In Production

The new Freeport, Texas plant of E. J. Lavino and Co., Phila., Pa., is now in production according to company authorities. The plant produces refractory grade periclase for the manufacture of basic refractories. The raw material used at the plant is a slurry of magnesium hydroxide piped from a neighboring plant of Dow Chemical Co.

Lavino's basic refractories plant at Gary, Ind., is expected to be in production early in 1961.

Jerry Svec Named Editor and Publisher

It is with particular pride that BRICK & CLAY RECORD announces the appointment of J. J. Svec as editor and publisher. Better known to his host of friends in the industry as

Jerry Svec

Jerry, the new publisher will continue to manage the editorial operations of the magazine and will in addition execute the duties of publisher with respect to advertising and circulation departments. He assumes the same responsibilities with *Ceramic Industry* and *Ceramic Data Book*, companion publications to BRICK & CLAY RECORD.

Jerry Svec brings to his new position a unique combination of industry and publishing experience. A ceramic engineering graduate of the University of Illinois, he completed 15 years of operational experience in plants before joining the B&CR-CI-CDB staff in 1942. From that date until the present he has occupied top level editorial positions on these publications and has become known not only for the consistently high quality of these magazines but also for his many services to the industry outside the sphere of publishing.

With Mr. Svec in the BRICK & CLAY RECORD editorial department are Neal

Mohler Brent Ehrke

F. Mohler, ceramic engineer and managing editor; Kenneth A. Brent, consulting editor, and Ernest W. Ehrke, associate editor. The staff represents many years of technical and journalistic experience.

New Substitute For Mortar

Raybestos-Manhattan, Inc. confirmed reports that it has developed a new adhesive material suitable for joining masonry construction units. John F. D. Rohrback, president, said Raybestos is not yet in commercial production of the material but indicated that the adhesive was to be introduced to the construction industry at the Concrete Industry Exposition in Detroit. Rohrback said the adhesive is a substitute for mortar and allows faster building.

Bricklayer Champions Compete For Bricklayer Apprentice

Eighty young bricklayer apprentices will compete for the title of 1961 Champion Bricklayer Apprentice in the 13th Annual Bricklayer Apprentice Competition at Cobo Hall in Detroit on April 7-12, President John J. Murphy of the Bricklayers, Masons and Plasterers International Union, announced.

The competition is held annually by the BM&PIU to call attention to its program of training skilled journeymen bricklayers and to promote a pride of craftsmanship among apprentices.

The apprentices, winners of local and state contests, will make their bid for the championship at the annual AFL-CIO Trades and Label Show in Detroit. Local and state competitions are sponsored by bricklayer unions and by mason contractors.

Texarkana Plant Damaged By Fire

A fire, which workmen at first thought had been brought under control, blazed through a fusion building of the Dickey Clay Co., Texarkana, Ark., recently doing damage estimated at more than $100,000.

The plant manufactures clay pipe. Plastic equipment used in fusing the lengths of pipe was destroyed in the fire, representing a loss of about $30,000, according to Marvin Vickery, Superintendent of the plant.

The building was destroyed, and a large stockpile of clay pipe was ruined, Vickery said.

New General Manager Named at Canada Brick

The appointment of G. E. Morden as general manager of its Canada Brick Division to succeed Ernest P. McSwain has just been announced by Canadian-Marietta of Ontario, Ltd.

McSwain who was one of the founders of Canada Brick and has remained as general manager since it was acquired by Canadian-Marietta, is planning to devote his time to establishing a brick business in Australia.

New general manager of this Canadian-Mariettea operation, G. E. Morden, was vice president and general manager of the Brinton Peterboro Carpet Company, Peterborough, Ont. before joining Canada Brick. He was previously associated with the Canadian Marconi Co., Montreal, P.Q., as manager of the broadcast and television receiver division, after first serving as sales manager and then merchandising manager of the division.

Illinois Brick Adds Indiana Subsidiary

Illinois Brick Co. has acquired the Poston-Herron Brick Co. of Attica, Ind. John R. Mitchell, IB Western brick division manager in Danville, Ill., will head operations at Attica. Illinois Brick, producer of common brick, purchased Poston-Herron as part of its diversification plan. The Attica plant will continue to produce red shale brick and operate as a subsidiary of the Chicago firm. Illinois Brick also is a representative for manufacturers of ceramic, glazed, architectural and paving brick as well as masonry accessories.

Marion Brick Co. Promotes Harmon

Appointment of Charles D. Harmon as executive vice president and general counsel of the Marion (O.) Brick Corp. was announced recently.

Harmon was one of the original incorporators of the predecessor company of the Marion Brick Corp. It was Keramos, Inc. which merged with the Franklin Clay Co. of Columbus, O. in Feb., 1950 to become the Marion Brick & Tile Corp., later becoming the Marion Brick Corp.

Welding Added to Bricklayer Apprenticeship Standards

At a recent meeting of the National Joint Bricklaying Apprenticeship Committee, representative members of the Bricklayers, Masons and Plasterers International Union, the Mason Contractors Association of America, and the Associated General Contractors of America, Inc. took

Discuss Advantages of Brick Construction

The advantages of brick construction in a public housing project for senior citizens are being pointed out to Casey Ireland, Executive Assistant to the Commissioner of the Public Housing Administration, by Alan Yorkdale (left), Staff Engineer for the Structural Clay Products Institute. They are inspecting a full-size model one-bedroom apartment unit on display at the National Housing Center. The unit is a duplicate of one in the San Antonio, Texas Housing Authority's Victoria Plaza Apartments for senior citizens.

joint action in include welding in the bricklaying Apprenticeship standards.

The National Committee realizes that a definite need for the addition of welding to the trade of bricklaying has been created by new trends in the use of pre-fabricated masonry panels that require welding to the building structural frame. By such action it is now possible for the masonry industry to render efficient service; and to keep in step with the changing technology of building construction.

Ludowici Celadon Co. Erects Dry Press

A dry press—the only one of its kind in the United States—is being erected at the Ludowici Celadon Co., New Lexington, O., roofing tile plant.

The press forms tile of dry, rather than wet clay. While there are none like it in this country, there are two or three in South America, and more in other parts of the world.

New Officers for Norton Co.

Ralph F. Gow, 57, was elected president of Norton Company at the company's 76th annual meeting recently. He becomes the seventh president of the largest abrasive manufacturer in the world which operates 25 plants in the United States, Canada and overseas.

Milton P. Higgins, 57 president since 1946, stepped up to chairman of the board succeeding George N. Jeppson, 87, who remains on the board with the title of honorary chairman.

John Jeppson, 44, becomes executive vice president succeeding Mr. Gow.

Robert Cushman, 44, of Worcester, Mass., and Richard M. Nichols, 55, of Wellesly, Mass., were named directors of the company.

Renkert Named Executive Assistant At Metropolitan

Donald H. Renkert has been named executive assistant of Metropolitan Brick, Inc., of Canton, O. The appointment was announced by Metropolitan president D. J. Renkert and marks the third generation to serve the company of which his grandfather was a co-founder in 1900.

In addition to new product development, Renkert's responsibilities will include cost-cutting and modernization studies for metropolitan plants in Canton, Minerva and Negley, Ohio, and in Bessemer and Darlington, Pa.

Previous to moving his headquarters to the Canton office in the Renkert Building, he was in charge of laboratory operations at the glazedware plant in Minerva, and before that he spent two years at the Darlington plant.

Zoo Uses Glazed Structural Tile

Silhouetted figures emphasize clean lines of ceramic glazed structural clay facing tile (Vitritile) used in this enclosure for monkeys at the $2 million Grant Park Zoo in Atlanta, Ga. The attractiveness of the structure is immediately apparent to the eye. Tucker and Howell, Atlanta architectural firm, specified several pastel shades of the Vitritile to obtain color harmony—pleasant for the animals and eye-appealing to visitors. This 6T series ceramic glazed facing tile is supplied by Natco Corporation, Pittsburgh, Pa.

Ship Millionth Yard of Lightweight Aggregate

Buildex, Inc's. Ottowa, Kansas plant passed an interesting milestone January 5, 1961 when the millionth yard of Buildex aggregate was loaded and shipped.

Buildex is the trade name of Buildex, Inc., for it's lightweight, expanded shale aggregate. This material, sometimes called haydite, has been shipped from Ottowa since April 1, 1952.

Marquette Kans., is the location of a second plant now under construction by Buildex, Inc., in the Mid-West area. Production totalling over 125,000 cubic yards annually will be available for shipment commencing in the spring of 1961. This will double the capacity of Buildex, Inc., in an area including Kansas, Missouri and Nebraska, principally.

Set Brick Home Show For June

The Des Moines Brick and Tile Manufacturers Association has announced that the annual brick home show will be Sunday June 11 through Wednesday June 14. Last year 52 home builders participated. Sponsors are the Adel Clay Products Co., Carlisle Brick & Tile Co., Des Moines Brick & Supply Co. and the Goodwin Brick & Tile Co.

McIntire Gets Acme Post

John McIntire has been appointed Arkansas Division sales manager of Acme Brick Co. He replaces Martin Borchert who resigned recently to enter his own business. McIntire joined Acme in 1937 as a regional salesman at Fort Worth.

Program Announced For Second BRICK & CLAY RECORD Clay Block Conference

The 2nd Clay Block Conference, which is sponsored by BRICK AND CLAY RECORD, will be held in the Palmer House in Chicago, Ill. on March 23 and 24, 1961. The program for the Conference has been completed and will consist of panel discussions by leading authorities in the industry.

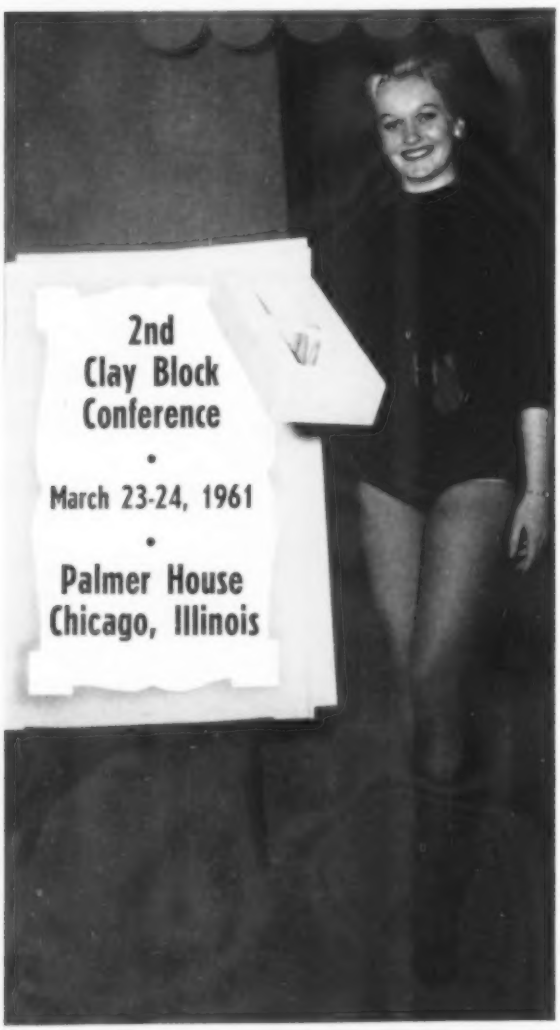
Thursday—March 23

Red Lacquer Room—Palmer House

8:00 A.M.—Registration.

9:00 A.M.—"Introduction & Statement of Purpose," J. J. Svec, Publisher, BRICK & CLAY RECORD.

9:15 A.M.—"Types of Aggregate Suitable For Clay Block Manufacture," G. C. Robinson, Clemson College, chairman. Panel members: Robert Taylor, director, Structural Clay Products Research Foundation; Charles Goodman, president, Material Service Corp., representing Expanded Shale, Clay & Slate Institute; Ron Hardy, Ludowici-Celadon Corp., representing Expanded Clay & Shale Association; Henry K. Burns Jr., Burns Brick Co.



Miss Carla Wesphal demonstrates the lightness of a lightweight clay block. Clay-bonded block is going places. How about you? Attend the 2nd Clay Block Conference and learn more about it.

10:45 A.M.—"Forming Clay Block," Dr. W. C. Bell, North Carolina State College, chairman. Panel members: L. Arthur Lassman, Benjamin Lassman & Son; Robert Poole, Chisholm, Boyd & White; Karl Nensewitz, Besser Machine Co.; Norman Small, Columbia Machine Co.; Harold Lamb, Crossley Machine Co.; James Hanson, president, Mineral Wells Clay Products.

12:00 Noon—Lunch, Red Lacquer Room.

2:00 P.M.—"Firing Clay Block," Neal F. Mohler, BRICK & CLAY RECORD, chairman. Panel members: Boyd Miller, Miller Equipment Co.; L. B. Coffin, Alfred University; Dean Tinker, Ohio Kilns, Inc.; Owen Cross, Swindell Dressler Corp.

3:30 P.M.—"Glazing Clay Block," Dean J. F. McMahon, Alfred University, chairman. Panel members: Bert Buehler, Cleveland Builders Supply; Joshua Lowenfish, New York State Housing Authority; George Pixley, Pelm Research, Inc.

Friday—March 24

9:00 A.M.—"Locatelli Press For Forming Clay Block," Louis Garlone, Kelsey-Ferguson Brick Co.

9:30 A.M.—"The Burnite Process For Manufacturing Clay Block," Wm. H. Burnette, Wm. H. Burnette & Associates.

10:30 A.M.—"How To Get In The Block Business," Neal F. Mohler, BRICK & CLAY RECORD.

11:00 A.M.—Architects & Contractors Discuss Clay Block. Earl Benedict, Architectural Editor, *Building Construction*, chairman.

Reservation cards have been mailed to every one in the industry. If you haven't received yours, please let the editors of BRICK & CLAY RECORD know, or make your hotel reservations directly with the hotel and receive the room of your choice. It is not too early to make your decision to attend. This may be one of the really important meetings of your career.

SCPRF News

THE PLANNED series of lightweight plant extrusion and firing trials at the Mapleton Development Corporation was completed on schedule and the results were sufficiently satisfactory, following their thorough evaluation by all parties concerned, to warrant proceeding with the next phase of the program. Studies are now being made of the actual facilities required, including detailed costs, for the installation of production equipment for "SCR verilite"* aggregate at the Mapleton plant. The facilities of the Ceramic and Industrial Research Division of SCPRF will now be concentrated on bringing the lightweight development program with Acme Brick Co. to a similar stage.

* * *

RECENT transverse strength tests conducted on 4 ft. by 8 ft. cavity wall panels built with the new high bond mortar under development by SCPRF and the Dow Chemical Co. resulted in an average maximum strength at failure of 213.33 psf. Compare this value with 33.4 psf, which was the average maximum transverse strength of similar brick and brick cavity walls constructed with a conventional mortar. The high bond mortar, in this case, developed wall strengths over 6 times those for walls built with mortars now being used. The ultimate development, introduction and use of this new type of mortar will be one of the most significant and important SCR developments in the field of structural clay masonry.

* * *

RESEARCH is recognized by most businesses today as being both necessary and profitable. Research minded business leaders, however, realize that many of the research dollars spent today cannot and do not yield dividends until years from now. It is this fact that makes research *planning* so important and, by the same token, often so difficult. Profitable industrial research requires that decisions and plans be made *now* to meet anticipated market needs and competition several years in the future. Research is an *investment* in dollars and manhours and must be carried out on a *planned, orderly* and *continuous* basis in order to produce a profitable return on that investment.

* * *

BOB TAYLOR, Director of SCPRF, will be the featured speaker at the Wednesday morning session of the MCAA annual convention in Philadelphia on February 22. Bob will head up a "team" from SCPRF that will stage an actual working demonstration of the "SCR masonry process." Two union masons will build a section of an "SCR brick"** wall using the "process."*

* * *

The SCPRF membership identification emblem shown here is available to all members for use on letter-

heads, literature, ads, etc. It has also been made available in 3-color decals, 3½ inches in diameter.

* * *

*E. G. SHERRILL, sales engineer for the Cherokee Brick and Tile Co., Macon, Ga., is providing a service to his contractor customers in Georgia that should help him in future sales. During recent months he has introduced 11 contractors in his sales territory to the cost-saving features of the "SCR masonry process"**. These eleven contractors are currently using the "process" on 14 jobs ranging from homes to a $1,-500,000 shopping center. Not only does "E.G." sell the idea of the "SCR masonry process"* to these contractors, he provides an additional service by being on hand to help the mason crew set up the equipment on their first job. This is an excellent example of putting research results to work at the grass root level.*

* * *

PAUL JOHNSON, deputy director of SCPRF, spoke before the Clay Division of the Canadian Ceramic Society at its 59th annual convention, held at the Chantecler Hotel, Ste. Adele, P.Q., on January 9 and 10. Johnson discussed the development of the "SCR building panel"* and showed the 19 minute movie taken during the fabrication and erection of panels for the Hirsch Clothing Co. job in Chicago.

* * *

THERE IS a growing amount of evidence that leaders in the architectural profession are becoming increasingly concerned about the stultifying effect of the metal panel fad on American architecture. LOUIS ROSSETTI *of Giffels and Rossetti, Detroit, indicated in a talk at the recent SCPI convention that his firm, like many others, has returned to masonry after going through the "metal-skin" phase. For economy and freedom of design, masonry construction still offers much more to the designer.*

* * *

POINTING to the rash of recent skyscrapers whose exterior surfaces are metal and glass, one of the leading architectural magazines recently accused the design profession with not finding "fresh pretexts to generate new and stirring forms of surfaces and to adapt new materials and structural systems to this purpose." The "SCR building panel," as now conceived and, particularly, in the exciting new forms recommended by Casper Neer in his study for SCPRF, will offer to the architect those "new and stirring forms and surfaces . . . and structural systems." Work is currently being carried on in the SCPRF laboratories on the development of a new panel casting technique that will permit the economical and flexible plant fabrication of sculptured or textured panels such as recommended by Neer.

* * *

* Reg. U.S. Pat. Off., SCPRF

* Reg. T.M., Pat. Pend., SCPRF

** Reg. U.S. Pat. Off., Pat. Pend., SCPRF

* Reg. U.S. Pat. Off., SCPRF

UNIFRAME

IS NOT THE SAME . . .

At a glance, the steel framework above, shown during construction at Clay Products, Inc., Holly Springs, Mississippi, may look similar to other rigid frame structures. But it is not the same. It's Uniframe, available only from Varco.

Uniframe means the clear-span steel framework is solid . . . one piece. The clutter of nuts and bolts has been eliminated through Varco's welding process. It creates a strong, rugged building . . . a better building —for less.

Varco has long been a specialist in buildings for the brick and clay industry. Kiln buildings, Clay Storage, complete plants . . . you'll find Varco structures in practically every clay product producing section of the nation. In this industry, more Varco buildings are being erected than any other type.

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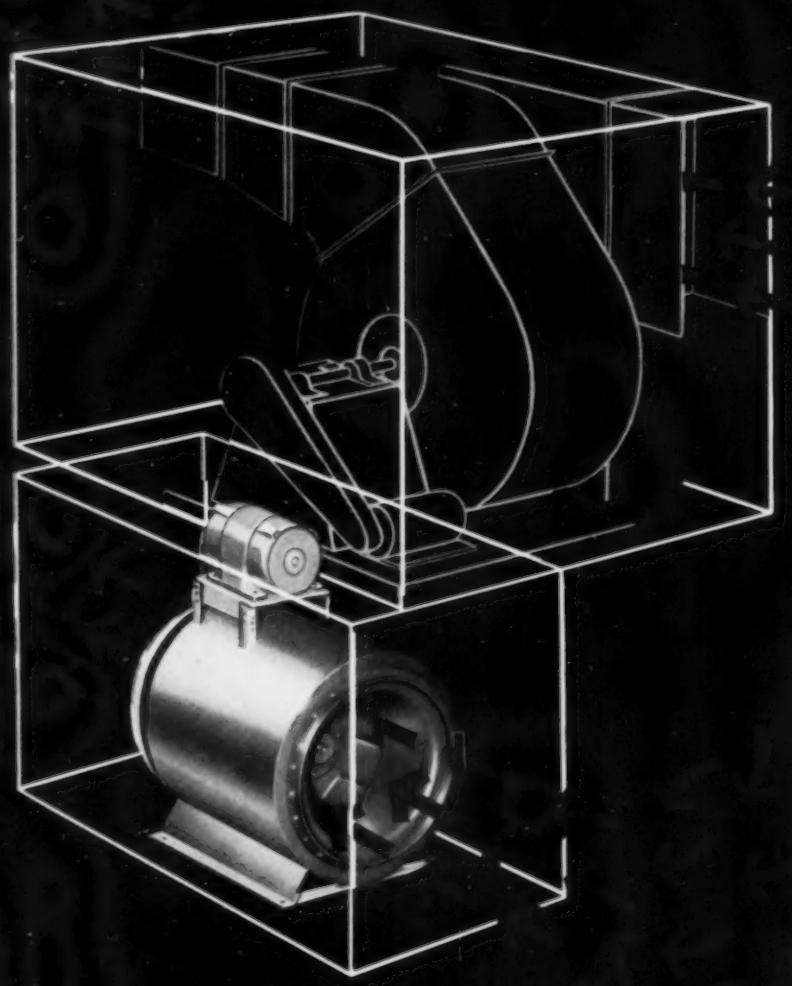

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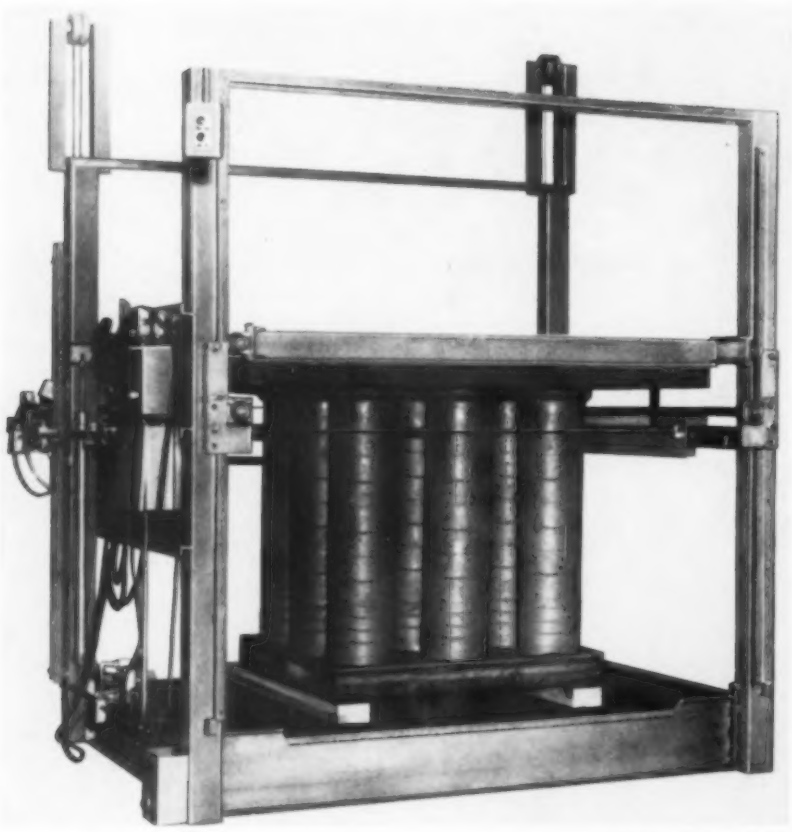

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HATTIESBURG, MISSISSIPPI—"Hattiesburg Brick Works was the first plant in the state to adopt the full-time use of Additive-A clay conditioner," says vice-president, A. G. Collins. "Additive-A has shown excellent results in speeded-up production, increased green strength and decreased dryer loss. It helps us to make a finished product we are extremely proud to show our customers."

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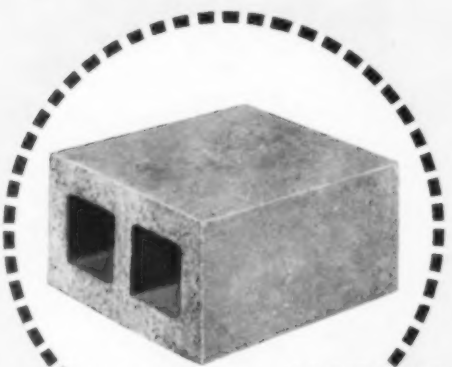
Accepted MORE and MORE by plants wanting to save MORE and MORE!

PHOTO—Cloud Ceramics No. 2 Plant, Concordia, Kansas. This modern plant uses 7" x 8½" x 19½" PACO car tops on top deck; 4½" x 8½" x 8¼" PACO car tops, with light weight insulation, for perimeter.

PACO CAR TOPS

More and more tunnel kiln brick producers are finding they can reduce car top replacement costs as much as 50% with PACO! And, here's why PACO car tops last longer. They are made from the mineral pyrophyllite, a superior raw material. The result is a stronger, lighter weight car top that is highly resistant to thermal shock. PACO car tops do not have a softening point below actual fusing point, providing greater resistance to hot load deformation. The result is better, more efficient production. They are easy to handle and install, and simple to replace individually as needs.

There is a PACO engineer as close as your telephone — or write for complete information!



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OTHER PACO PRODUCTS INCLUDE: • PACO PLASTIC • PACOCAST • PACO H.T. CEMENTS • PACO FIRE BRICK MORTAR • PACO SIDE CAR BRICK • PACO FIRE BRICK • PACO LADLE LINING • PACO HEATZONE COMPOUND

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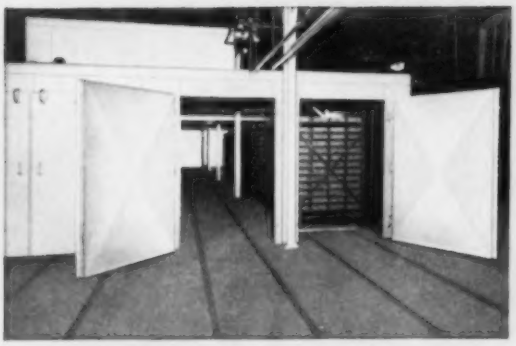
HEAVY CLAY DRYERS

...the product and problem dictate the design



Car Type Humidity Controlled Fire Brick Dryer.

The LANLY Company's geographical location is near the heart of the country's clay products producing area. This has contributed to their 20 year acquisition of the essential knowledge and experience required to design and build the finest in heat processing equipment for the exacting varied applications in the industry.

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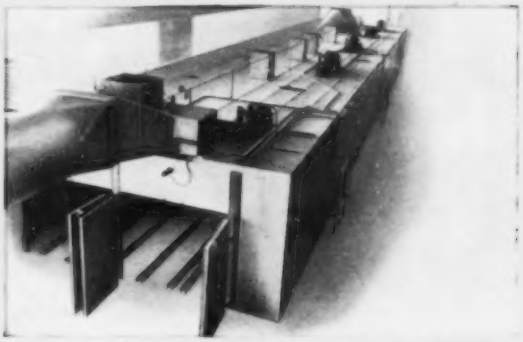
Rack Type Humidity Controlled Refractory Dryer.



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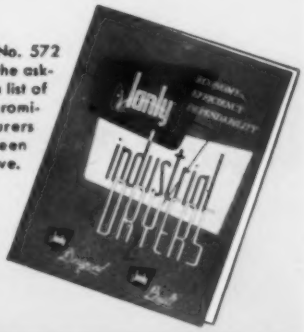

Atlanta, Georgia • Birmingham, Ala. • Boston, Mass. • Chicago, Ill. • Cleveland, Ohio
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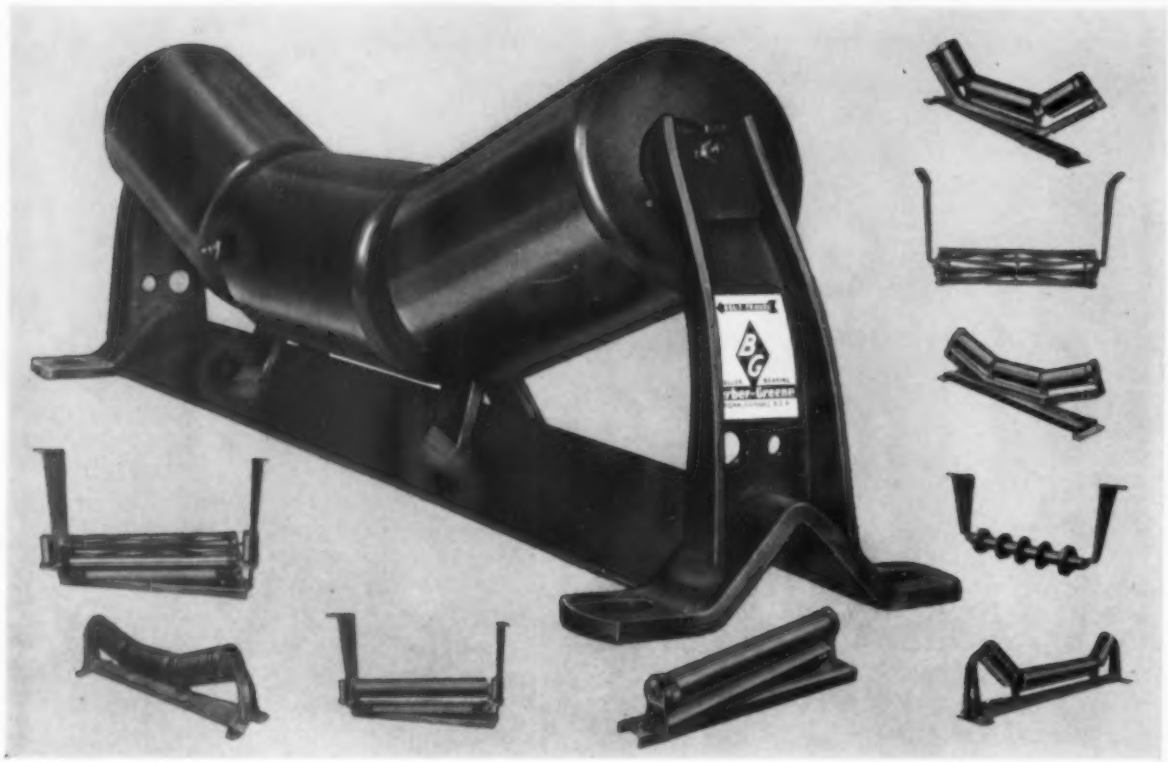

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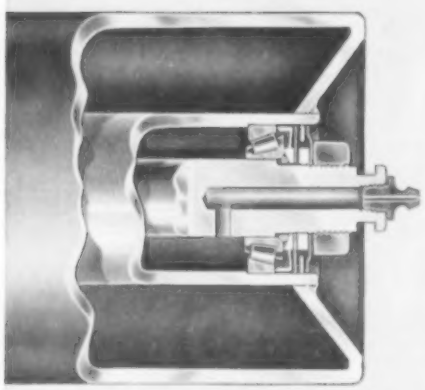

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UNNECESSARY LABOR WASTE

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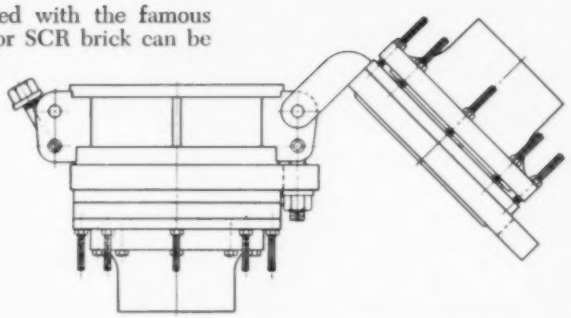
When these money-saving Die Holders are coupled with the famous Chambers #30 Series Cutters, standard, Norman, or SCR brick can be alternated in production schedules with less than a minute changeover from one product to another.

Shown in the photograph above is one of several styles of Double Hung Die Holders. Included are the formers, spacers, and shapers needed to properly mount and balance a complete range of sizes and designs of brick dies. Here you see the "surrounding" type of die holder that many plants have found to be most advantageous. Welded steel construction eliminates all possibility of breakage, and permits the use of safety pins if desired. With this complete assortment of rings, straight or tapering augers can be matched with 8″, 12″, or oversize brick and tile dies. Let us know your product range for proper selections.



Plants preferring bolt-on brick or tile die designs will use this style where a full range of adjustment makes possible optimum die balance and performance. Full flexibility in this type needs fewer supplemental component parts, and represents less over-all capital cost to you.

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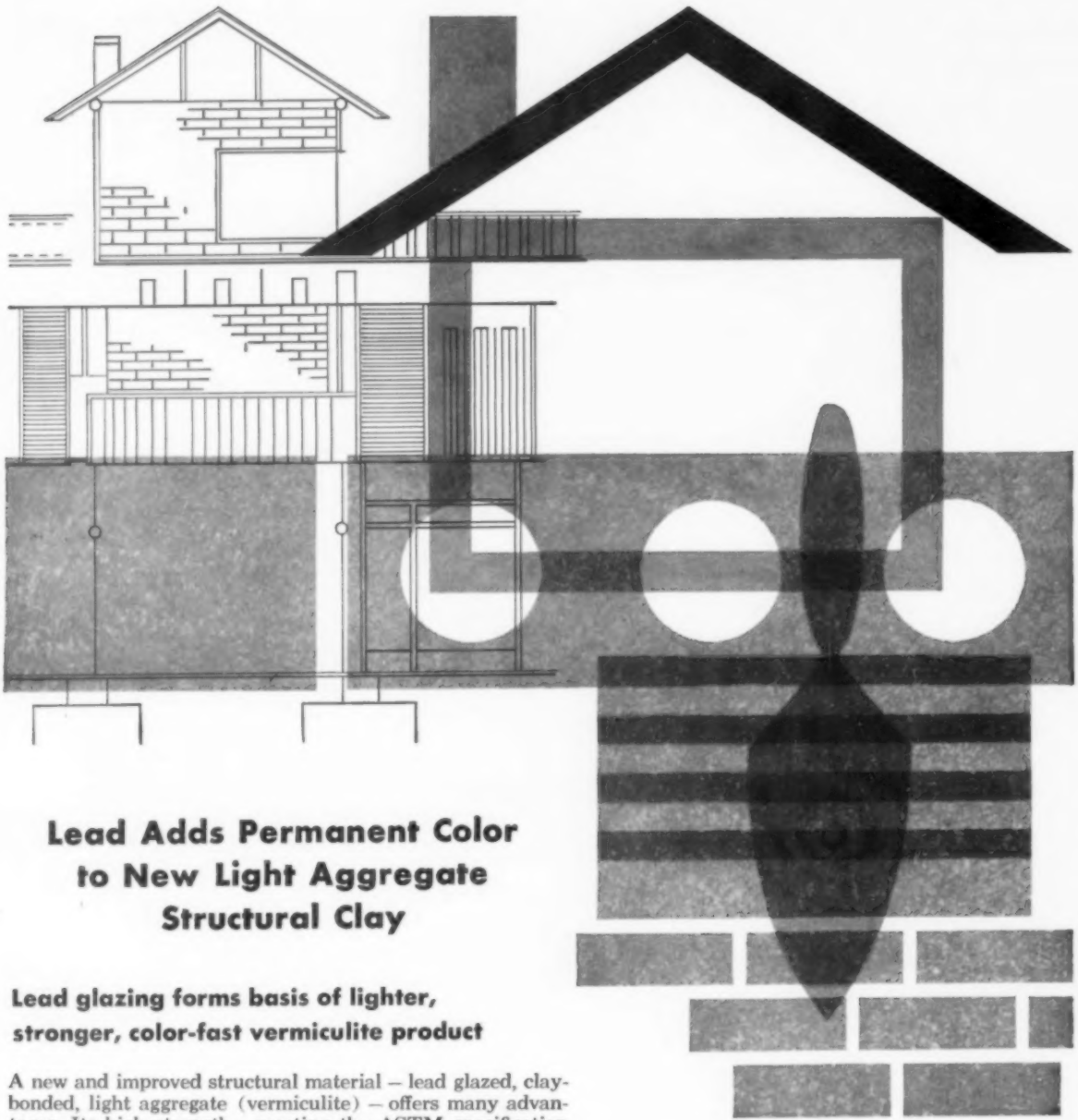

Lead Adds Permanent Color to New Light Aggregate Structural Clay

Lead glazing forms basis of lighter, stronger, color-fast vermiculite product

A new and improved structural material – lead glazed, clay-bonded, light aggregate (vermiculite) – offers many advantages. Its high strength – meeting the ASTM specification for Class A concrete block – is one major asset. Its wide range of permanent color is another. Thus it provides the construction industry with a new structural clay product for both interior and exterior use with integral color styling and a smooth, self-cleaning surface.

In developing the glaze, the Zonolite Corporation tested a variety of glass compositions. Of all these only lead glazes gave consistently good results in the temperature range up to 2000°F. Lead is important in these glazes because it gives a controlled viscosity range, allowing reaction of the glaze with the body but not allowing excessive soaking of the glaze into the porous body.

This new product is another example of how the structural clay products industry has relied upon lead glazes . . . on brick, tile, and other structural clay materials to provide more useful, beautiful and marketable products. For more information, write to: Lead Industries Association, 60 East 42nd Street, New York 17, N.Y.

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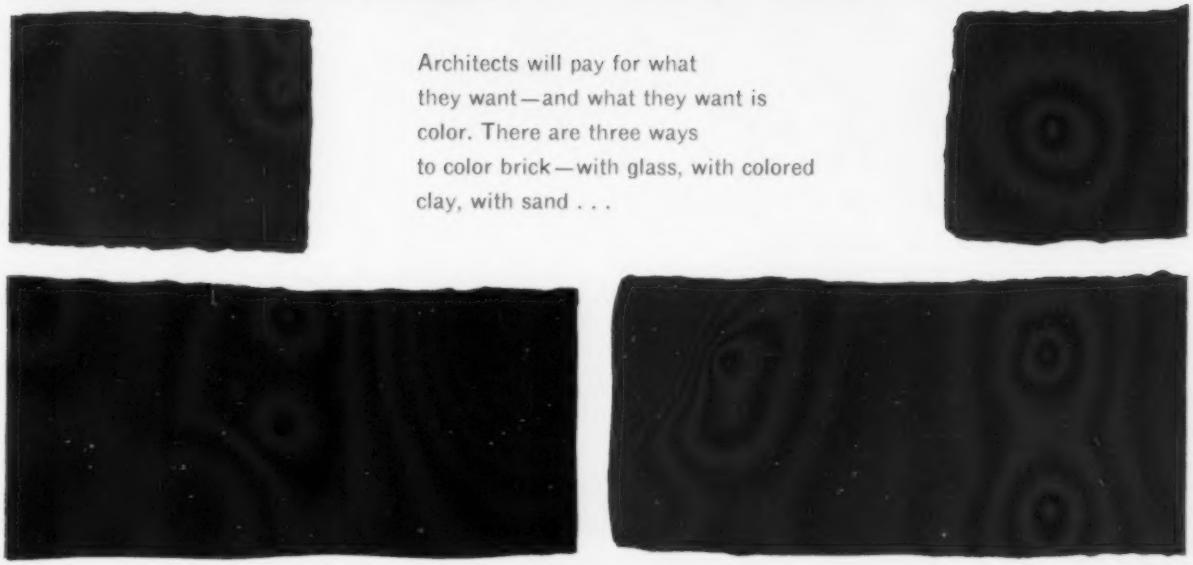

GLASS.
A ceramic glaze gives brick sparkling, brilliant color that gleams like jewels. Pemco will develop a ceramic glaze formula for your brick. Send pieces of fired and greenware.

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Engobes coat bricks with velvety, matt-finish pastels. This is beauty that is new for brick—vastly desirable and very saleable. Send for a sample of dry engobe, ready to use. Just add water and spray on green brick.

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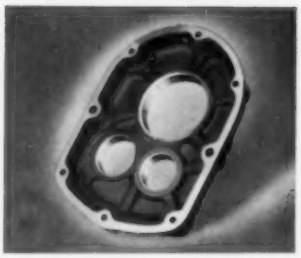
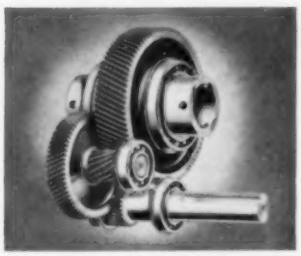
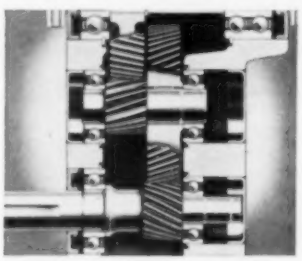


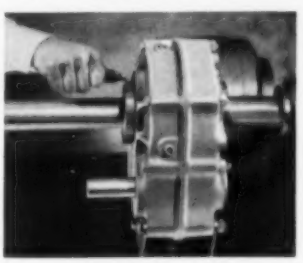
Rugged, semisteel housing holds bearing seats in line for entire life of unit. Laughs at loads. Corrosion resistant.



AGMA rated helical gears. Soft cores withstand shock; hardened surfaces defy wear. Teeth are crown shaved.



Gears are located *between* bearings and carry their loads without strain. Longer life, higher efficiency.



Unit slides completely onto shaft and locks on *both* sides of housing. This baby stays *put*—runs truer longer.

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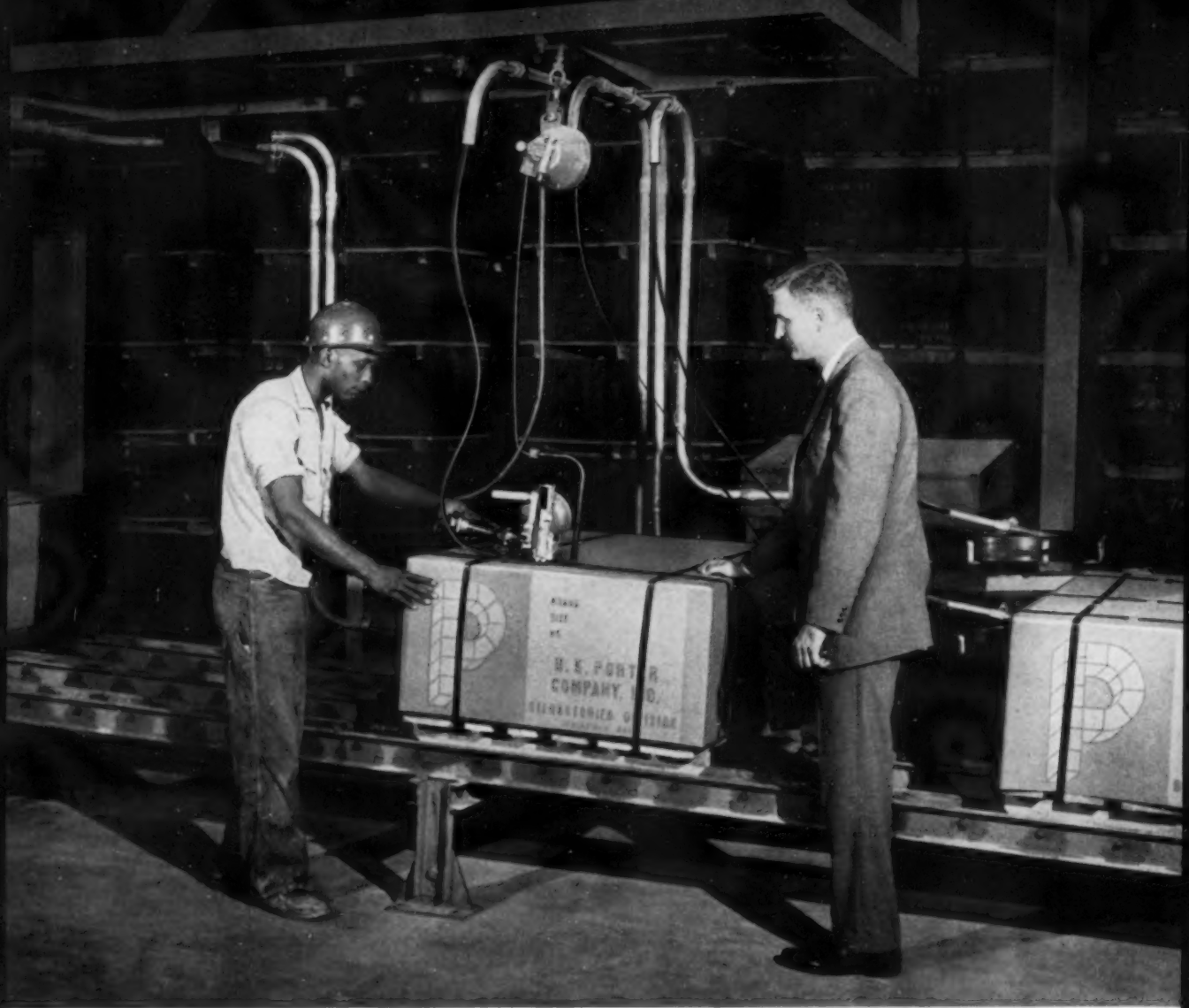

Acme Idea Man Allen Johnson helped the H. K. Porter Company, Inc. Refractories Division, Pascagoula, Miss., plan Idea No. 53-74.

The Acme Steel Strapping Station planned into this new refractory brick plant has far exceeded expected packaging output.

Originally, this firm anticipated a daily rate of 96 wrapped and strapped packages—palletized for faster, safer handling. But, the two-man crew is currently packaging 120 units per 8-hour day with their fully-powered A4 Pneumatic Steelstrappers. And they can turn out an even greater number when the need arises.

Your Acme Idea Man often plans fire brick packaging systems that exceed expectations. For details, call him or clip the coupon.

ACME STEEL

IDEA LEADER IN

STRAPPING

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Acme Steel Products Division
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Please send me Idea No. 53-74 and examples of how major companies in my field use Acme Steel Strapping.

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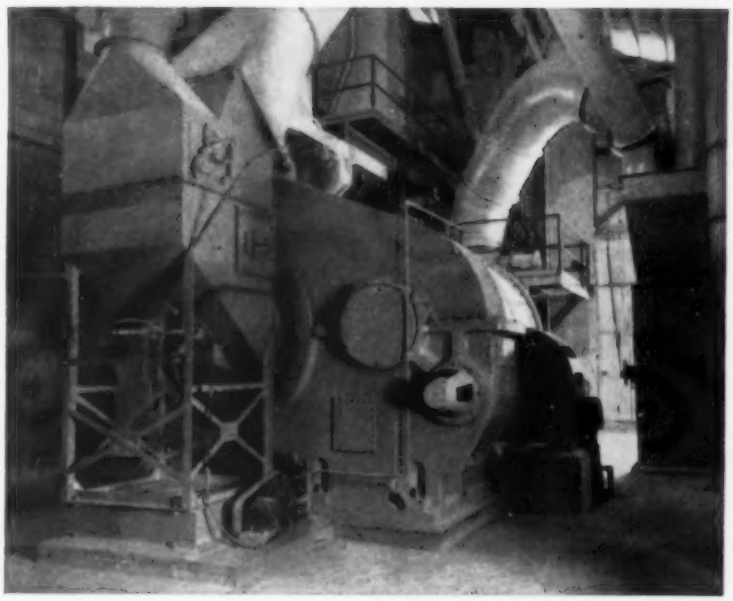
production costs with a
KENNEDY
air swept grinding system

The KENNEDY Air Swept Tube Mill Grinding System is the ultimate in high production and low operating cost. The experience of the many owners of KENNEDY Mills has shown that the cost of this mill can be paid in a few years with the savings in maintenance and power alone!



KENNEDY 10′ x 15′ Integral Gear Drive Air Swept Ball Tube Mill and #93 Exhauster Fan in service at the American Agricultural Chemical Co., Pierce, Florida.

HERE ARE A FEW OF THE REASONS FOR THE ECONOMY AND POPULARITY OF KENNEDY PULVERIZING SYSTEMS...

REDUCED MAINTENANCE • Tramp iron and other foreign material cannot damage the system. Years of operation are assured before parts (except for grinding balls) require replacement.

CONTINUITY OF OPERATION • Lubrication and replacement of grinding media is accomplished without shutdown or interruption of production.

MINIMUM POWER • Careful design and construction and a proven pressure lubrication system insure a high mechanical efficiency.

HIGHER PRODUCTION • Single grinding units are built for capacities to 100 tons per hour. Production and fineness remain constant, month after month.

LOWER OPERATING COSTS • Dependability of equipment and reliable automatic feed control assure high production with minimum manpower.

CAPITAL SAVINGS • No magnetic separators are required. KENNEDY units require less structural steel and floor space per ton of product.

FLEXIBILITY OF DESIGN • KVS Air Swept Grinding Systems are available for a wide range of capacities and products.

Send now for full details on KENNEDY Size Reduction Equipment.

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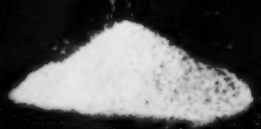
ULTROX® Opacifiers are the unusually uniform, ultra-high opacity zirconium silicates originally developed by M&T. Today there are three grades: ULTROX STANDARD for whites and colors; ULTROX 500W for strong whites and pastels; and ULTROX 1000W for ultra-whites to match enamels.

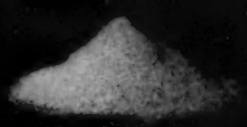
TIN opacifiers

Three distinctly different M&T tin oxides offer a wide application range in enamel opacifiers, production of ceramic stains and glass colors. They are: M&T TIN OXIDE—LIGHT, M&T TIN OXIDE—SPECIAL WHITE, and M&T TIN OXIDE—PRIME METAL.



ANTIMONY opacifiers

For iron and steel enamels, you have your choice of M&T SODIUM ANTIMONATE and M&T ANTIMONY OXIDE.



TITANIUM opacifiers

VIRFLUX® C, a special low-chromium, ceramic source of titanium dioxide which can replace more costly pigment grade TiO_2 in many ceramic applications.

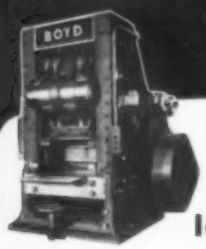
*Trademark

Excellent performance in your glazes or enamels is the single objective of our manufacturing methods, our laboratory testing, and our research and development work. That's why we use so much plant know-how in our test procedures—and that's why we use kiln firing as a definite *practical* check on opacifier performance *before* shipment.

M&T Chemicals

METAL & THERMIT CORPORATION
General Offices: Rahway, N.J.
In Canada: M&T Products of Canada Ltd., Rexdale, Ont.

BOYD PRESS IS BASIC / for aluminum furnace refractories



MODEL Y delivers density needed for low porosity and resistance to corrosion

More and more refractory producers are discovering how a *step-up* to a Model Y Boyd Press can be a giant step toward filling customer demands for high alumina furnace brick.

It takes a heavy duty press to deliver the power and compaction necessary to achieve a brick that will withstand the combination of destructive forces at work in an aluminum furnace.

In Model Y, a big 37″ x 21″ x 12″ mold cavity helps you make the *most* of higher pressures to increase hourly production and/or handle larger size molds. The resultant brick is extremely dense and accurate as to size—with attending properties of low porosity and resistance to corrosion.

Write for details.

CHISHOLM, BOYD & WHITE COMPANY

A SUBSIDIARY OF WEHR STEEL COMPANY

610 W. 57th STREET
CHICAGO 21, ILL.

BOYD
POWER PRESS

Aluminum holding furnace at Ravenswood Plant of Kaiser Aluminum & Chemical Corporation.

News of Refractories

Wilson President of Harbison Walker

Harbison Walker Refractories Co. recently elected A. Brent Wilson president. He had been executive vice president since 1958.

Earl A. Garber, president since 1948 was elevated to chairman of the board. He continues as chief executive officer.

Wilson, a metallurgical graduate joined the company in 1934 as an employee of Canadian Refractories Ltd., a Harbison-Walker subsidiary. By 1948 he had become general manager of Canadian Refractories.

He was transferred to Pittsburgh, Pa. in 1948 as assistant to the president of the parent firm. He became a vice president in 1955.

TRI Marks Tenth Anniversary

On January 12, 1961, The Refractories Institute celebrated its 10th birthday. It was on this date in 1951 that the Articles of Incorporation as a non-profit corporation in the State of Pennsylvania were court approved. For many months preceding and immediately following this date, innumerable meetings and conferences were held between leaders of the Refractories Industry, looking toward the establishment of an association which would be truly representative of all segments of the industry.

The Institute office was not formerly opened until June, 1951, at which time there were 19 active members. The Institute now has 83 active members, 26 associate members, and 10 honorary associate members, and represents about 85% of the refractories production in the United States.

Judges For Award Contest

The following honorary associate members of The Refractories Institute have agreed to serve as judges in the selection of the three best papers on any phase of refractories submitted in the TRI's 1961 Award Contest: Herbert B. Plunkett, chief judge; Edgar W. Ernst, and George Puls.

The deadline for the receipt of entries in the contest was Feb. 1. Announcement of winners and presentation of awards will be made at the Factory Operators Meeting to be held at the Pick-Ohio Hotel in Youngstown, O. on April 6-7.

Two Advanced To Key Jobs At Corhart

Two key positions have been filled in the Corhart Refractories Co., Louisville, Ky., with the naming of Norman J. Vang as vice-president of manufacturing and Donald W. Shoemaker as manager of manufacturing services.

Vang joined Corning Glass Works, the parent organization of Corhart, in 1933, while Shoemaker has been associated with the company since 1940, joining Corhart in 1957.

Staff Promotion at Kaiser

Philip A. Gaebe has been appointed to the new position of product manager-refractories for Kaiser Refractories & Chemicals Division, Oakland, Calif. He was formerly assistant general sales manager of the Eastern Division with headquarters in Pittsburgh, Pa.

Louisville Firebrick Promotions Announced

Miss Minette A. Ellwood has been appointed secretary of the Louisville Fire Brick Works, Louisville, Ky., replacing C. C. Small, deceased. Miss Ellwood has been with the company since 1936. Norman C. Updegraff, president, has assumed the duties of treasurer.

Charles B. Ernst, who joined the company in 1934, has been named sales manager. Arthur D. Schol has joined the firm as controller.

Fused Zirconia Used In Furnace Construction

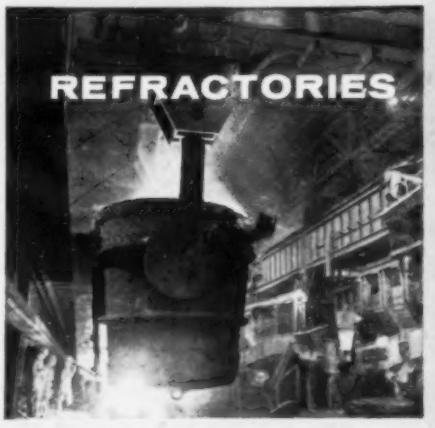
Fused stabilized zirconia refractory, a valuable military and industrial research tool since its development by the Norton Co., Worcester, Mass., in 1951, has been placed in service in its first commercial application as a refractory for furnace construction.

A furnace designed to operate continuously at elevated temperatures in the vicinity of 3992°F. has been built by C. M. Manufacturing and Machine Company of 103 Dewey Street, Bloomfield, N. J. The refractory for lining the hot-zone is fused stabilized zirconia manufactured by Norton Company.

Wilson Elected President of Harbison Walker Refractories

Hiram Swank's Sons, Johnston, Pa. is nearing completion of a newly designed kiln which is said to be the first of its type in the United States.

Called a side shuttle kiln, the new equipment will complete the burning process for molded refractories after they have been on the drying floor. Gas-fired and completely automatic, the side shuttle is a combination of periodic and tunnel kilns, and is expected to utilize advantages of both flexibility of operation.



"Much depends on the ultimate success of the side shuttle kiln since its efficiency will determine whether or not the company eventually will build eight more of the same type at its four plants," said Albert M. Swank, president.

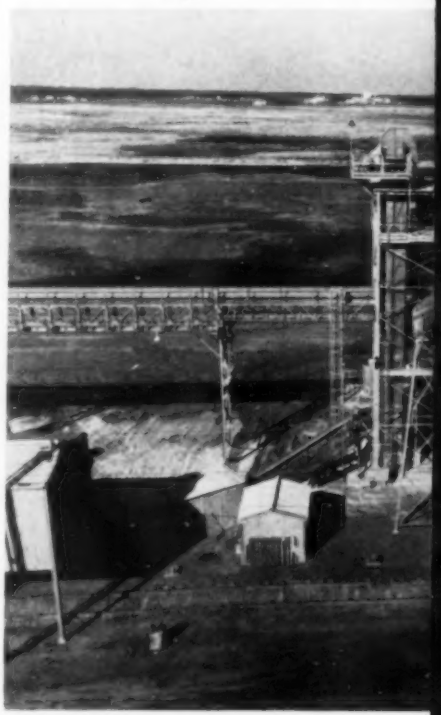
Frederick Retires, Plans Consulting Work

After many years of service with North American Refractories Co., Cleveland, O., Charles L. (Red) Frederick recently announced his retirement. Frederick has stated his intention to possibly enter consulting work, starting first in the Cleveland area and then branching out to other parts of the country. He will be available for overseas assignments if the occasion so demands.

Invest $12 Million in South's First

This is a report on the progress of H. K. Porter's new basic refractories plant at Pascagoula, Miss., as of February, 1961. Much has been done to the plant and processes since the initial operation, and this up-to-date report is made possible by the cooperation of H. K. Porter's executive personnel.

2. Rail deliveries of dolomite are received and either sent directly into the process or are stockpiled. The tower-like structure houses crushing and sizing equipment and various elevator and conveyor facilities. These are used to process and deliver the dolomite as required.



The Pascagoula, Miss., Works of the Refractories Division, H. K. Porter Co., Inc. is the South's first, fully integrated basic refractory facility for the exclusive production of periclase and other basic refractory materials.

The Mississippi Gulf Coast's newly developed Bayou Cassotte industrial area was chosen as the site for the new basic refractories plant for several reasons. It is near Southern steel centers, within economical distance of dolomite—an important raw material—and provides a site where freighters from Africa and the Phillipines can unload, at the company's own wharf, chrome ore that is another important raw material. The site provides easy access to the sea water from which magnesium is extracted, in the process of making periclase brick.

Two Major Activities

Located at Pascagoula are two major activities—the production of periclase from sea water, with the simultaneous processing of chrome ore; and the conversion or manufacture of these materials into brick and other refractory forms. An important part of this new operation is the precise, highly automated control of every production step.

The chemical plant section draws magnesia out of the sea water, converting it to dead-burned periclase at a maximum rate of 125 tons per day. To accomplish this, the extraction system processes 13.2 million gallons of sea water.

The brick plant section grinds, screens, mixes, forms and bonds the periclase and chrome ore into brick and refractory specialties, at a rated capacity of 80,000 tons per year.

Completed at a cost of $12 million, the Pascagoula works utilizes the most up-to-date refractory brick-making equipment available. Improved methods have been developed for grinding, batching and pressing brick. Controlled size fractions are stored in 60 bins which supply both the brick making and specialty operations. Batching is highly automated and controlled by one man for the entire plant. All electrical and electronic controls for the batching system are housed and operated from a central air conditioned room. Newly designed, heavy duty presses are used for brick production.

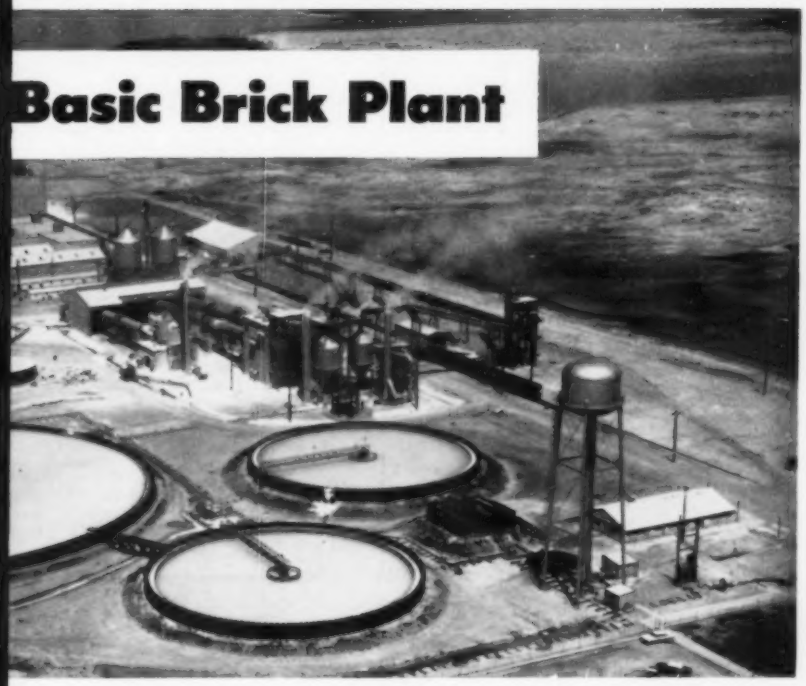
Modern driers and a tunnel kiln for the drying and firing of basic refractory brick were designed and constructed by Swindell-Dressler Corp., Pittsburgh, Pa.

Products are shipped by truck, railroad, barge and deep water vessels. The latter two operate from the works' own dock, which is on a 30-foot channel. The plants have complete physical and chemical laboratories for process control to insure high-quality products.

Porter's total property at Pascagoula is 404 acres with the plant site proper consisting of approximately 45 acres. The site had to be raised from an average elevation of one to two feet above mean sea level to an average elevation of eight feet, which required about 325,000 yards of fill. The building and equipment struc-

(Text continued on page 66)
(Picture story on next 5 pages)

Basic Brick Plant

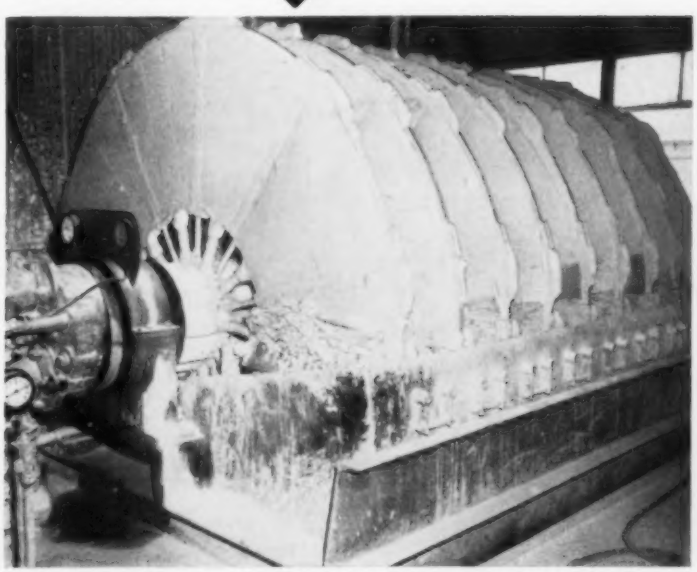


1. The "tank farm" is part of the chemical plant at Pasagoula. In the tanks you see here, several processing operations are taking place. Sea water and associated minerals from the Gulf of Mexico pass from tank to tank . . . elements are added or eliminated, and the entire mixture washed until a slurry of magnesium hydroxide (20% solid) is produced. The brick plant is in the background.

PASCAGOULA WORKS... Vital Statistics

AREA:	
TOTAL	402 acres
PLANT	45 acres
PRODUCTION CAPACITY:	
PERICLASE	125 tons a day
REFRACTORIES	80,000 tons a year
MATERIALS:	
DOLOMITE	342 tons a day
SEA WATER	13,200,000 gallons a day
FRESH WATER	720,000 gallons a day
CHROME ORE	35,000 tons storage
EQUIPMENT:	
TANKS	Seven - the largest with a capacity of 5.5 million gallons
ROTARY KILNS	Three
TUNNEL KILNS	One
PRESSES	Five heavy duty mechanical
BINS	60 holding 25 tons of material each
MIXERS	Three - two for brick and one for specialties
CRUSHERS	Two jaw crushers Three gyratory crushers

3. Between reactor tank and these disc filters, the magnesium hydroxide which was formed by the reaction between sea water and dolime, has been washed and thickened to form a 20% solid slurry.



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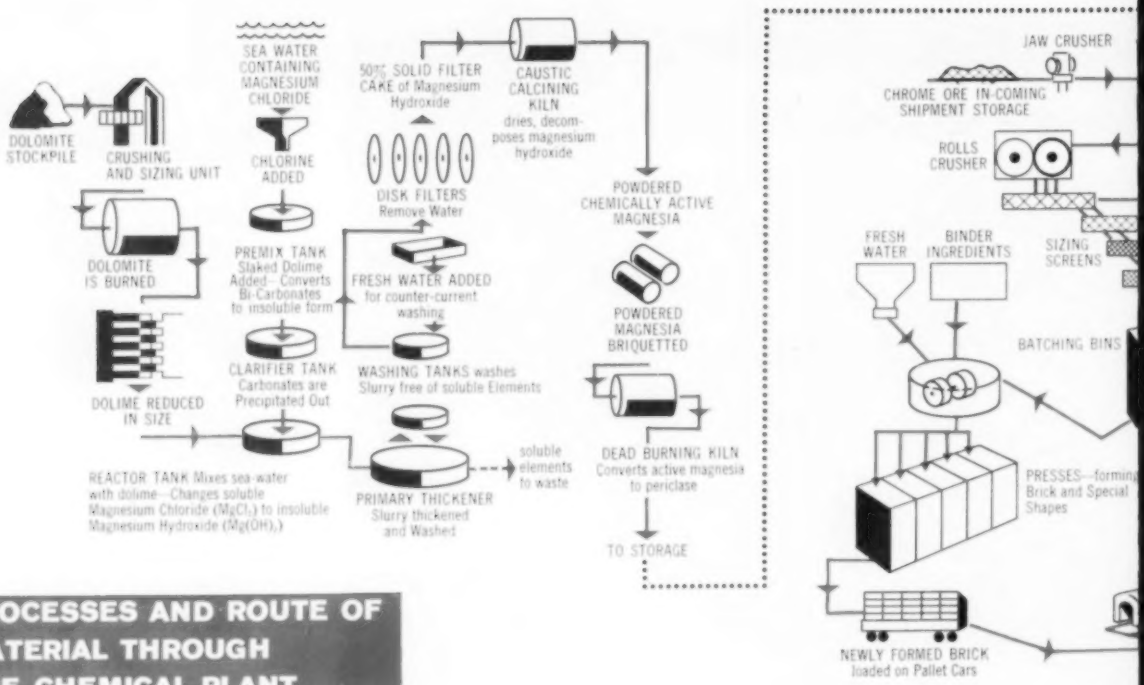
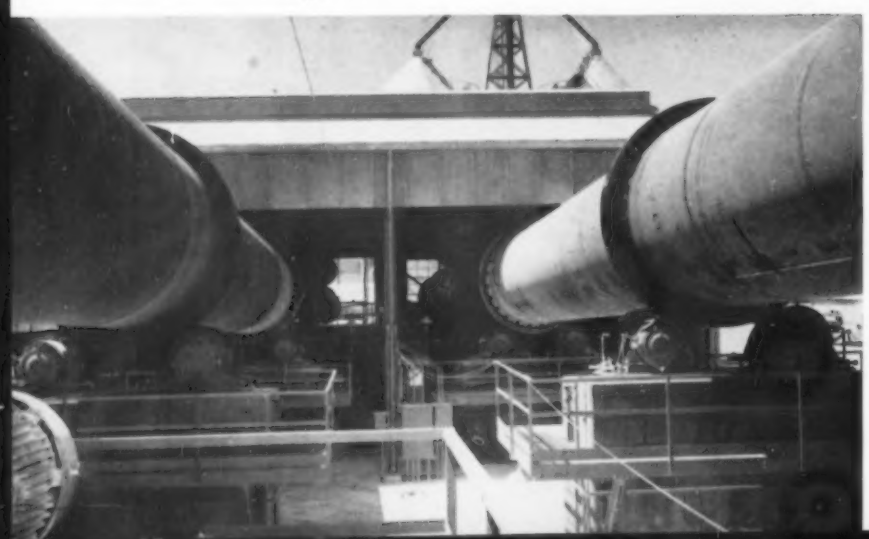

SEA WATER CONTAINING MAGNESIUM CHLORIDE
DOLOMITE STOCKPILE
CRUSHING AND SIZING UNIT
CHLORINE ADDED
50% SOLID FILTER CAKE of Magnesium Hydroxide
CAUSTIC CALCINING KILN
dries, decomposes magnesium hydroxide
DISK FILTERS Remove Water
POWDERED CHEMICALLY ACTIVE MAGNESIA
DOLOMITE IS BURNED
PREMIX TANK Slaked Dolime Added-- Converts Bi-Carbonates to insoluble form
FRESH WATER ADDED for counter-current washing
POWDERED MAGNESIA BRIQUETTED
DOLIME REDUCED IN SIZE
CLARIFIER TANK Carbonates are Precipitated Out
WASHING TANKS washes Slurry free of soluble Elements
soluble elements to waste
DEAD BURNING KILN Converts active magnesia to periclase
REACTOR TANK Mixes sea-water with dolime--Changes soluble Magnesium Chloride ($MgCl_2$) to insoluble Magnesium Hydroxide ($Mg(OH)_2$)
PRIMARY THICKENER Slurry thickened and Washed
TO STORAGE
JAW CRUSHER
CHROME ORE IN-COMING SHIPMENT STORAGE
ROLLS CRUSHER
FRESH WATER
BINDER INGREDIENTS
SIZING SCREENS
BATCHING BINS
PRESSES--forming Brick and Special Shapes
NEWLY FORMED BRICK loaded on Pallet Cars

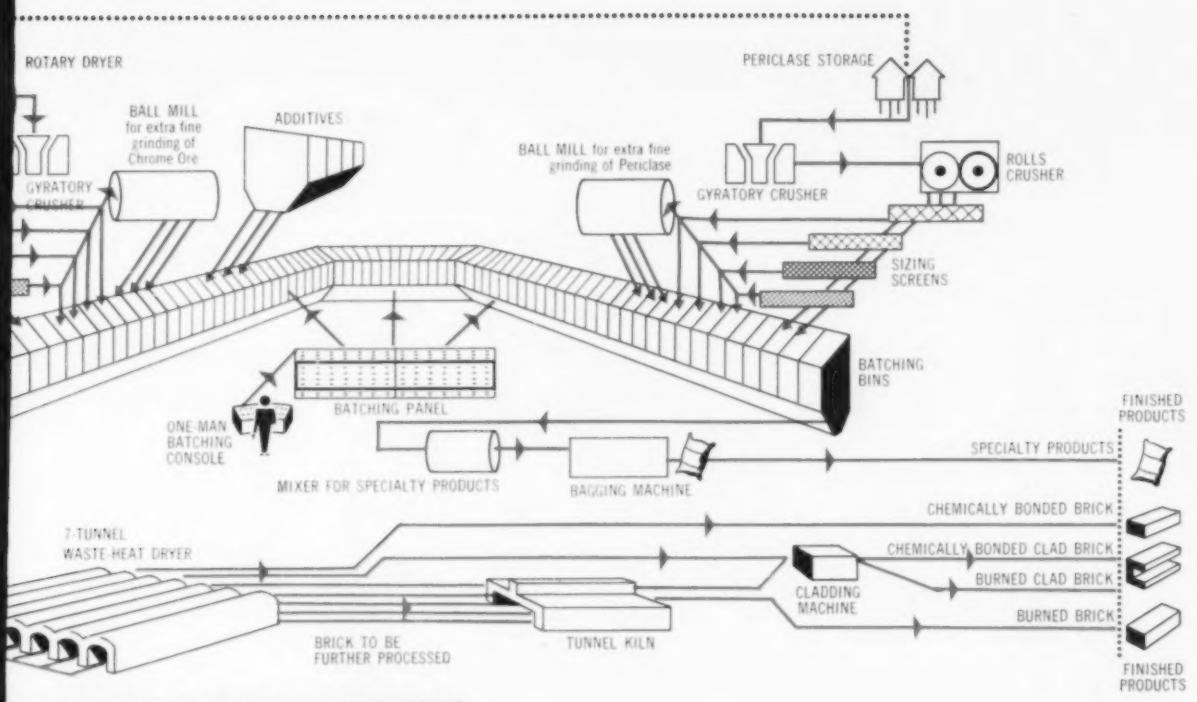
PROCESSES AND ROUTE OF MATERIAL THROUGH THE CHEMICAL PLANT

4. CAUSTIC CALCINING KILN—At this point the filter cake enters the first of two addition kilns through which it must pass—one for drying and decomposition, the second for sintering. Termed double-burning, these two stages are usually combined, in less modern periclase producing operations. The first stage in double-burning takes place in the caustic calcining kiln. Here the magnesium hydroxide is dried and decomposed at temperatures up to 1800°F; conveying the filter cake to powdered, chemically active magnesia. Between kilns, in the double-burning process, the powdered magnesia is briquetted. Magnesia in briquette form is more effectively calcined producing better grain structures in finished products. With this method, additives to the magnesia are not required to obtain thorough calcining.



5. DEAD BURNING KILN—As a final step in the chemical plant section at Pascagoula, the active magnesia is deadburned—thereby converted to a hard, dense periclase grain. The finished periclase product will next move to storage. From storage the periclase will subsequently move to the brick plant section of the operation.

4. DOLOMITE KILN—This is the first kiln in the chemical plant section. It adds to the preparation of dolomite for eventual reaction with sea-water. In this kiln the dolomite is burned and emerges as dolime.



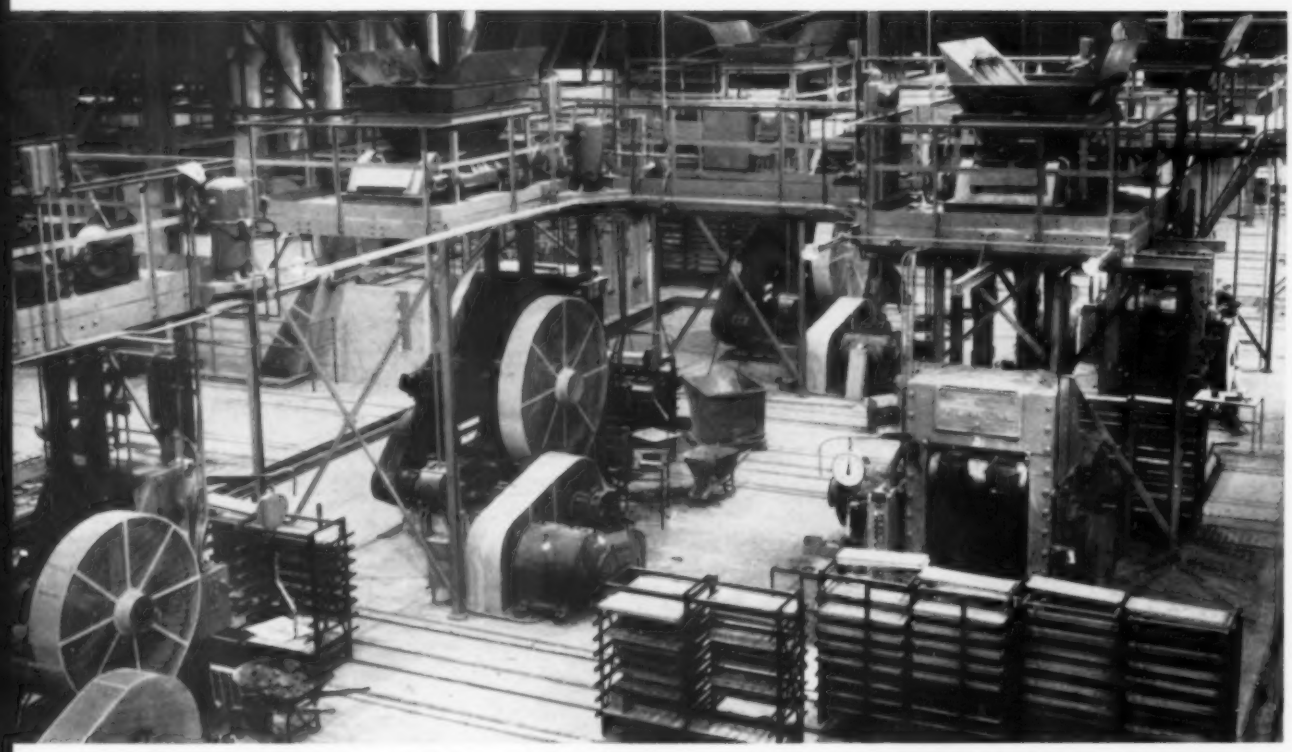
PROCESSES AND ROUTE OF MATERIAL THROUGH THE BRICK PLANT

7. Two mixers blend refractory ingredients with fresh water and binding materials and temper the mix to optimum consistency for dense pressing. Shown at the bottom left is a batch bucket on its way to the presses.

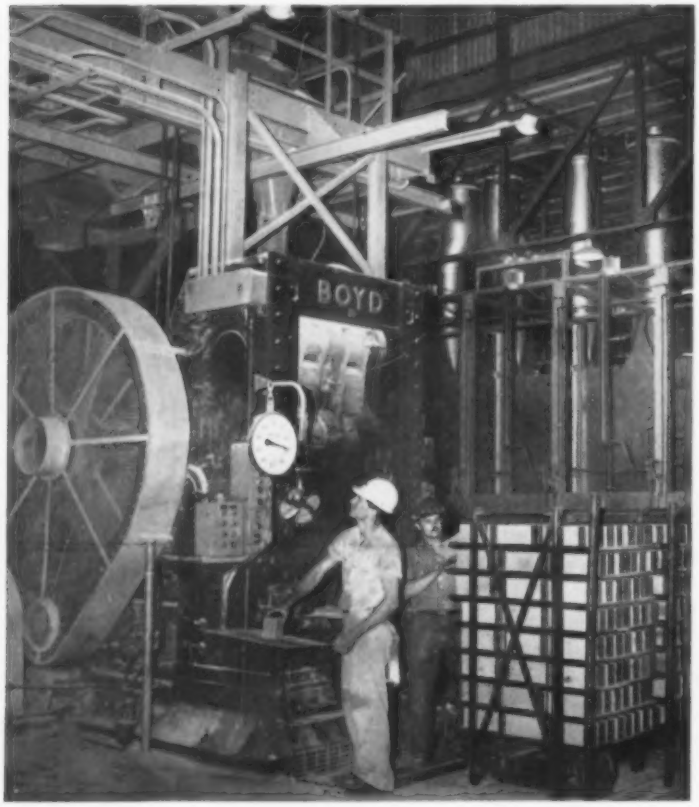
6. Finished periclase from the chemical plant is stored in these giant silos. On demand periclase is taken from the silos and by conveyor belt is elevated to the roof of the brick plant. It is then carried into the plant, and into the crushing system.

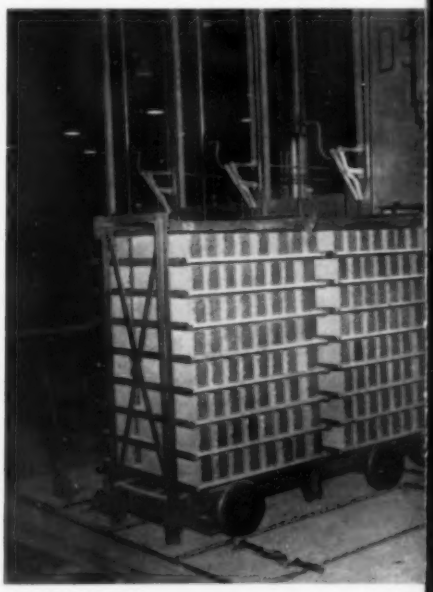
8. Batching operator sets up the console which controls the mixing operation and distribution of brick mix to the presses. The mix is conveyed from the mixer in a combination hoist-trolley which delivers the batch and returns to the mixer automatically. Sixty batching bins, of 25 tons capacity each, hold the various grain sizes of periclase, chrome ore and additive materials.

Turn page for more pictures



9. Five heavy duty presses are utilized to receive the tempered batch from the mixer and form the brick and special shapes under extremely high pressures. Three Boyd presses and two International presses are located in the forming section of the plant.





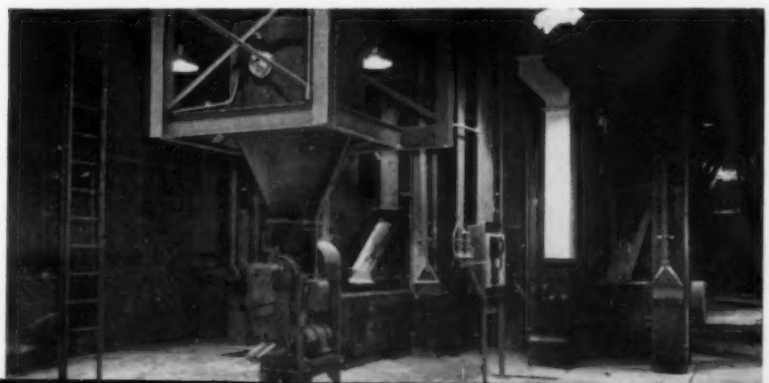
10. As the brick are formed at the press, periodic checks on the green brick are part of the duties of the quality control engineer. Brick are constantly checked for weight, size and density.

12. All brick manufactured to burned specifications pass through this 278-foot Dressler tunnel kiln. They pass through in from 2½ to 7 days, at temperatures up to 3100°F. Space has been allowed in the original design of the plant for another tunnel kiln.

11. All brick, chemically bonded and burned, pass through one of the seven tunnels of a modern, controlled zone dryer. From here, chemically bonded brick go to stock or to the metal cladding machine; other brick proceed to the tunnel kiln.

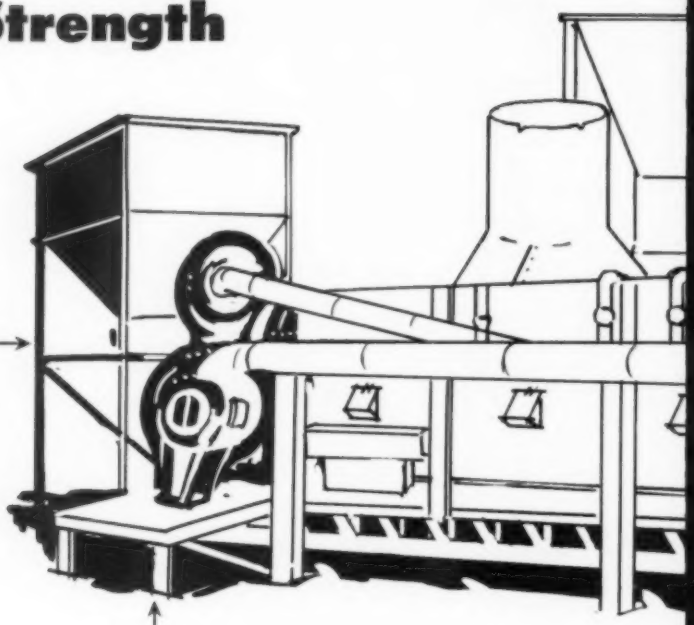
13. Some of the chemically bonded brick and burned brick are sent to the metal cladding machines, to be encased in metal for specific refractory applications.

14. Refractory specialty products travel from an independent mixing operation to be bagged here, and made ready for shipment or storage.



Calcining Cuts Density, Maintains Brick Strength

North American Blowers provide primary and secondary combustion air for the Bloom radiant burners.



A Chain Belt conveyor feeds the presized clay to the hearth of the calcining furnace.

One of the most perplexing problems that has been facing the brick industry is the problem of cutting the density of the brick, while still maintaining the sound strength of the fired brick. At the same time it is desirable to reduce the density of the green brick as an aid in drying and eliminating the carbon and sulphur before forming to allow more rapid firing without black coring or bloating. One brick manufacturer, the West Brothers Brick Co., Washington, D.C., decided on a production-size, plant-wide experimental approach to this problem.

Experiments were conducted in the plant over a period of time which indicated that prefiring a portion of the raw materials and adding this calcined clay in certain proportions did much to solve the problem. The proportion of calcined material added was arrived at after a series of trials over a long period of time, during which time all variables in particle size and the firing temperature of the calcined material were tested.

These experiments indicated further that wet, sticky clay particles passing through a 3/8" screen could be calcined and used without additional grinding. The optimum temperature was 1600° F. which required a furnace temperature of 1800° F. Calcined material in amounts from 5 to 15% is being used to obtain the desired results. Buff material is being calcined and used in buff brick and red burning material for red brick.

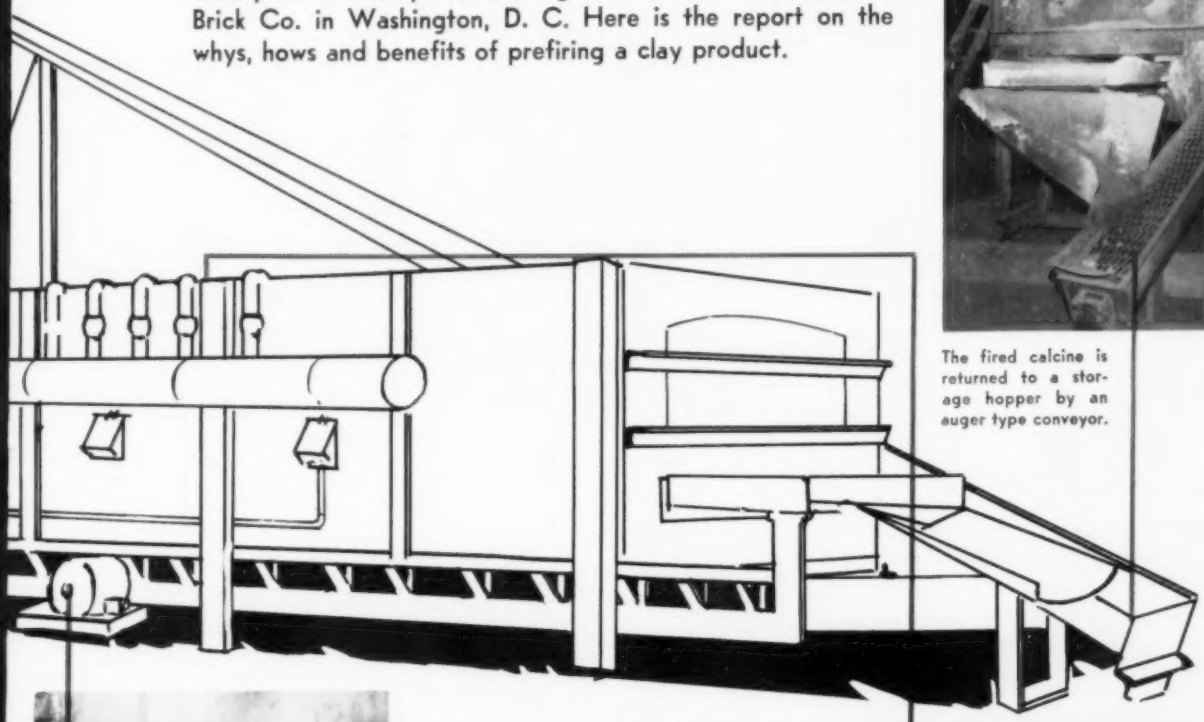
By way of observation, it was found that a proportion of less than 5% calcined material made no appreciable change and more than about 15% addition did not make a proportionate improvement in the finished product and firing characteristics.

In order that the calcined material could be used on a commercial basis, several problems had to be solved:

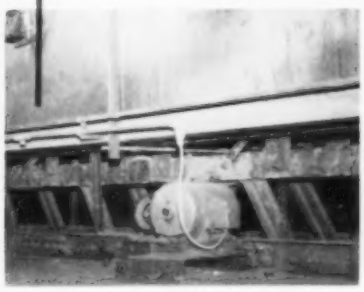
1. To make calcine fast enough to keep up with the production.

To clarify the confusion in the industry regarding the need for prefiring, Brick & Clay Record editors have been asked to clearly review the process being used at the West Brothers Brick Co. in Washington, D. C. Here is the report on the whys, hows and benefits of prefiring a clay product.

The fired calcine is returned to a storage hopper by an auger type conveyor.



Radiant burners provide the source of heat by introductions of gas through the crown of the kiln.



The hearth of the furnace is a refractory coated Jeffrey vibrating conveyor.

2. To make it at a low cost.
3. To have the proper particle size for calcining, and not have to regrind, and
4. To eliminate the necessity for drying prior to calcining.

A vibrating hearth calcining furnace, manufactured by the Miller Equipment Co. of Salisbury, N.C., was chosen. This furnace is basically a vibrating conveyor with a refractory lined tray with a furnace shell built over the top. It is fired by a series of radiant oil burners from the roof of the furnace.

Clay is fed into the furnace from a storage hopper and feeder which also feeds the brick machine. This feed to the furnace is at the rate of six tons per hour. The material passes through the furnace in 2 minutes, 45 seconds and emerges as finished calcine. It is then carried by a screw conveyor to another storage hopper and feeder over the pug mill feed belt where it is proportionately added to the raw clay feed to the brick machine.

The benefits of such a procedure employing the Miller vibrating hearth calcining furnace are numerous. Adding calcined material to the raw clay will reduce dryer cracks and otherwise benefit drying, aid oxidation in the firing process, reduce the firing shrinkage, permit extrusion with a higher vacuum and with less laminations, reduce the cooling cracks, allow a faster firing schedule and permit the firing of larger pieces without the danger of black coring and bloating.

These benefits extend to the bricklayer himself, since the brick manufactured with the addition of calcine are less dense, break accurately and are easier to lay in the mortar. At the same time, the color and texture are not changed and will not create a selling problem for the salesman. The quality control function is made more reliable and the product itself is made considerably better by providing a lighter, more uniform brick.

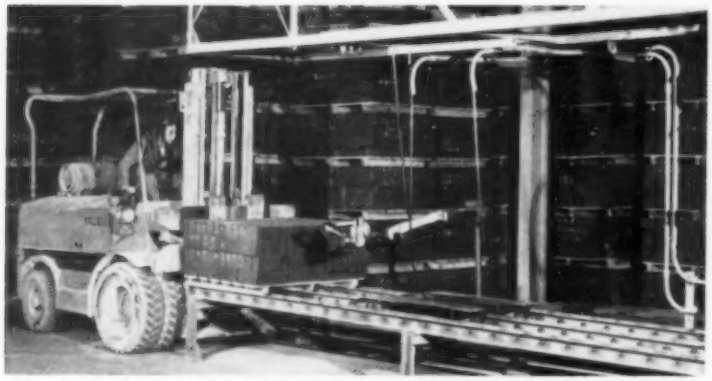
PACKAGING

TO THE MAN

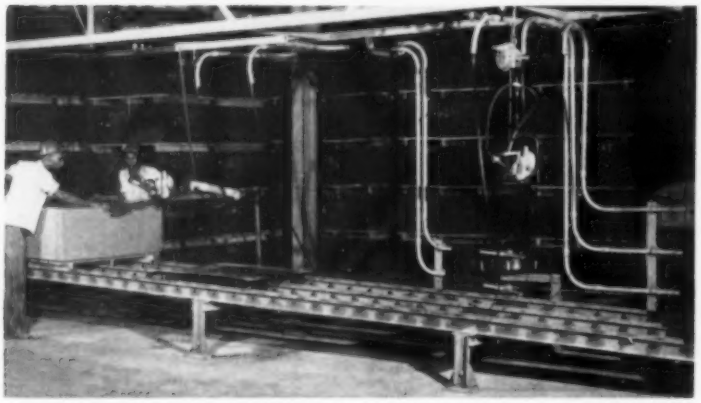
Interested in Expediting Final Product Handling

Here's what companies in the industry do to solve the age-old problem of handling.

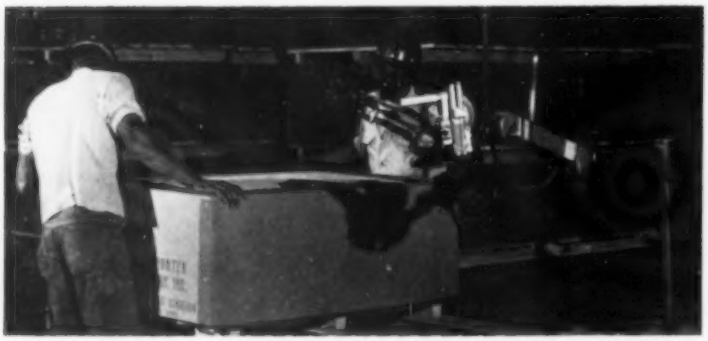
Two Men Package Entire



1 After the brick come out of the tunnel kiln, the dryer, or the cladding machine, they are palletized. The pallets of brick are then brought by fork lift truck to the strapping station and placed on the high end of the conveyor section.



2 The conveyor section is 25 feet long and slopes from a height of 24⅜ inches at one end to a height of 16½ inches at the other end. Here two workers apply a corrugated wrap around the four sides of the package and place a corrugated piece on top.



3 The two workers then push the loaded pallet into position under the first strapping tool mounted on a specially designed mount. At this point in the conveyor line are two spring-loaded pressure plates which bear upward on the bottom of the pallet when it is in strapping position.

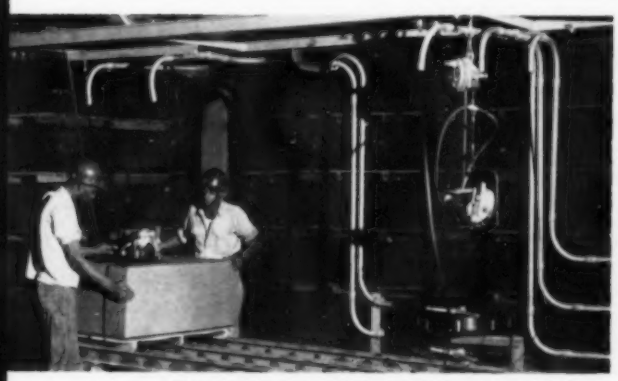
Production of Plant

When the Pascagaula, Miss., plant of H. K. Porter Co.'s Refractories Division was designed, it was planned from the beginning that all the brick produced would be palletized. With the help of Acme Steel Co., a strapping station was designed and installed even before plant operation began.

From the time the plant was started, brick have been handled on pallets for faster, more efficient handling by fork lift truck. The strapping station was designed to enable two men to wrap and strap 96 skids of brick per 8-hour working day. In less than four months of using the strapping station, the plant men were able to achieve a rate of approximately one skid every four minutes. The 2-man crew can strap at an even faster rate, but one fork truck driver bringing skids of brick to be strapped and removing the strapped brick cannot keep up with them.

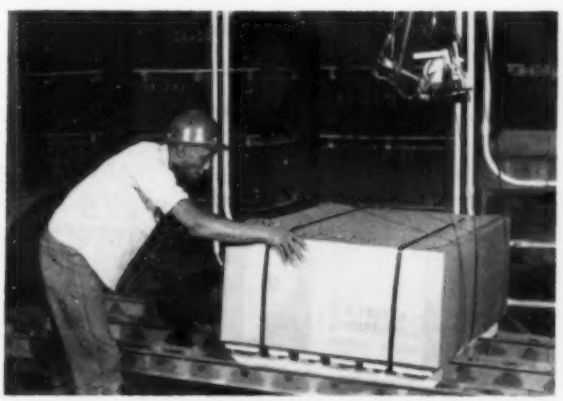
The company also uses the strapping station for strapping skids of other items they ship. They strap skids of mortar with 30 100-lb. sacks per skid; and skids of high-temperature plastic in drums, with 16 drums per pallet weighing a total of 3312 pounds.

4 These pressure plates facilitate threading strap through slots in the pallet runners and keep the strap from dropping down between the runners as the straps are threaded. The two workers thread two lengths of strap through these slots and loop them crosswise around the pallet and brick.

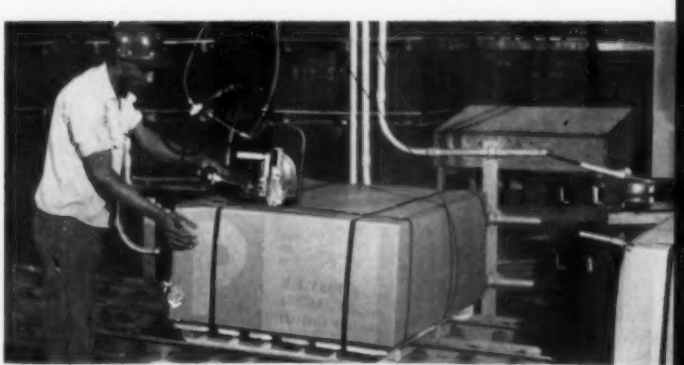


5 The strapping operator then tensions and seals the two crosswise straps and cuts them off with the Acme pneumatic Steelstrapper. This tool is the first of two in the line and is mounted about one third of the way down the conveyor section.

6 The strapping operator then moves to the next strapping point, where the second strapping tool is mounted on an Aero Balancer. This is located two-thirds of the way down the conveyor section. The other worker moves to the front of the line and gets the corrugated wrapping ready for the next package.



7 The strapping operator pulls three lengths of steel strapping down from overhead feed tubes and fastens them into three gripping dogs welded onto the conveyor line between the conveyor roller sections. He then pushes the skid into position under the strapping tool. As he does so, the three lengths of strapping are carried lengthwise around the skid of palletized brick.



8 The strapping operator then tensions and seals the three straps around the package and cuts them off with a second pneumatic Steelstrapper. The strapped package is pushed to the end of the conveyor section, from where it is removed by fork lift truck to the storage or shipping area.

Representative kilns: Left, updraft scove kiln; center, downdraft kiln; right, coal-fired tunnel kiln.

Firing Heavy Clay Products--Part V

Three Basic Factors In Kiln Firing

This is the fifth part of a series of articles on firing heavy clay products by Seanor. Previous installments appeared in Brick & Clay Record in June, 1960, page 99; July, 1960, page 46; September, 1960, page 76, and January, 1961, page 86. These articles continue in consecutive issues.

By J. GEORGE SEANOR

If one throws off the old kiln traditions which shackle ones thinking, the basic problem of firing brick can be broken down into three simple factors.

The first factor is the generation of the proper volume of kiln gases. (Kiln gases are simply combustion gases, or mixtures of combustion gases and excess air).

The second factor is to provide the proper temperature in the kiln gases at the right time.

The third factor is to apply the kiln gases uniformly to all brick in the kiln, at the proper temperature.

Many of the traditions of kiln firing can be ignored entirely when one comes to grips with the three factors above, thoroughly understands them, and designs his kilns and setting pattern to work with them.

All kiln troubles and inefficiencies arise because these factors are improperly controlled and co-ordinated.

These factors apply to any type of kiln—chamber, annular, up-draft, up and down draft, shuttle, side-fired, or tunnel kiln. Unless the designer and operator thoroughly understands the three factors above, maximum success is never attained.

These three factors apply to any type of fuel,—solid, gaseous, or liquid. The brick deep down in the kiln setting do not care where the BTU and the required hot oxygen comes from, or how the kiln gases are generated.

The following discussion of kilns and firing will deal with these three important factors, and will, necessarily, be a little unsympathetic to the traditions of kiln firing.

The traditions in connection with kilns arose to explain phenomenon encountered before authoritative technical data and principles were developed, and many are not in accordance with modern technology.

Bulletin No. 189, published in 1922 by the now extinct American Face Brick Association, gives considerable detailed information on some building brick kilns. Using the data recorded in this bulletin, and the empirical methods suggested by Etherington,[1] for making practical, although rough, estimates of the volume of gases involved in furnace operation, the table BA was compiled. The writer assumed that the coal was 13,500 BTU coal. The average temperature of the burning periods was estimated from the published firing curves.

Table BA covers the burning of Kiln No. 1 twice—designated as burns 1-A and 1-B. It also covers the burning of Kiln No. 2 twice—designated as burns 2-A and 2-B.

Total Volume of Gases

During burn 2-A a total volume of 114,149,096 cu. ft. of kiln gases passed through the kiln system. In order to visualize this volume of generally invisible gas, just suppose it were snow. An equal volume of snow 3′ deep on a 20′ wide highway would extend along the highway more than 360 miles. This is about the distance from Chicago, through Des Moines to Adel, Iowa; or from Detroit, Mich. to Lexington, Ky.

A plant firing brick that mature at a fairly high temperature uses 1200 lbs. of coal per 1000 brick. If

[1]Etherington, Harold "Modern Furnace Technology" Charles Griffin & Co., Ltd. London, 1938 P-74—and other sections of the book.

this coal is fired with an average of 50% excess air about ten tons of air are required per 1000 brick, or per 1200 pounds of coal.

Kiln No. 1-A (Table BA) required about 1415 cu. ft. of kiln gas, per brick; and about 31 lbs of air was used to fire each brick.

Theoretical Combustion

In firing Kiln 1-B about 407 tons of air was required for the theoretical combustion of the coal without any allowance for the excess air used. In addition to combustion air, on this kiln, they used about 985 tons of air in the form of excess air.

In the firing of kiln 2-B about 24 lbs of air was used in the firing of each brick. These kilns, mentioned above, used much more excess air than was necessary because the kiln gases was not applied efficiently and effectively to the brick in the mass setting. While the writer cannot now locate the reference, R. T. Stull said at one time, that the average kiln operator over-estimated the volume of excess air required.

When the setting of the brick is properly arranged so that kiln gases can circulate effectively around the individual brick, less excess air and less fuel are required.

Notice that during the soaking period kiln No. 1-B had to handle 393 cu. ft. of combustion gas every second. An equal volume of water (393 cu. ft.) would be approximately 58 barrels per second. The kiln moved 58 barrels of kiln gases down through the interstices between the brick every second. This is, indeed, a traffic problem.

Volume of Gases

Another comparison that might be helpful in grasping the significance of the great volume of gases to be handled in kiln firing, is comparison by weight. If the temperature of the air on the kiln yard were 60°F, during the burn, kiln 1-A used 32,302,487 cu. ft. of normal air for combustion and excess air.

If you are handy with your slide rule this volume of air at 60° would weigh a little over 1,200 tons. While the kiln firemen were shoveling about 41½ tons of coal into the kiln, the kiln system was sucking in about 1,200 tons of air.

Those who operate kilns have a real traffic problem on their hands. They actually have a problem in logistics because they must move the huge volume of heat carrying combustion gases (or mixture of combustion gases and air) from the fireboxes into the kiln chamber efficiently and promptly as it is generated.

They must distribute the kiln gases uniformly among the ware in the kiln, at the proper temperature, and in proper volumes. They must remove the waste gases, promptly and efficiently, when they have done all they can in treating the ware. The components of the kiln system should be so proportioned that they enable the solution of this problem in logistics efficiently.

Few down draft kilns are properly designed to handle the volume of gases required in the desired time. Consequently the time of burn is

(Continued on page 61)

TABLE BA

BURN	PERIOD: WATERSMOKING, OXIDIZING & HEATING-UP OR SOAKING	COAL USED, THIS PERIOD IN POUNDS	LENGTH OF PERIOD IN SECONDS	ESTIMATED AVERAGE TEMPERATURE OF PERIOD – DEGREES FAHR.	AVERAGE PERCENT OF EXCESS AIR USED	"NORMAL" CU. FT. OF AIR USED THIS PERIOD (60° & 30" Barometer)	"NORMAL" CU. FT. OF COMBUSTION GASES GENERATED (60° & 30" Barometer)	ACTUAL CU. FT. OF COMBUSTION GASES AT TEMPERATURE OF THIS PERIOD	CU. FT. OF COMBUSTION GAS PER SECOND	"NORMAL" CU. FT. OF AIR REQUIRED FOR THEORETICAL COMBUSTION (60° – 30" Bar.)	"NORMAL" CU. FT. OF EXCESS AIR USED (60° – 30" Bar.)
1-A	W.S.	17,600	223,200	600°	412%	12,161,000	12,769,680	25,539,360	114	2,376,000	9,785,000
	O & H	42,400	198,000	1,500°	140%	13,737,600	14,423,480	54,365,424	265	5,724,000	8,013,600
	SOAK.	22,953	97,200	2,000°	107%	6,403,887	6,724,081	31,040,845	319	3,098,655	3,305,232
	(Total)	82,953	(144 Hrs.)			32,302,487	33,917,241	110,945,629		11,198,655	21,103,832
1-B	W.S.	8,700	136,800	600°	479%	6,800,355	7,140,373	14,555,376	106	1,174,500	5,625,855
	O & H	25,100	208,800	1,500°	117%	7,353,045	7,720,697	29,101,166	139	3,388,500	3,964,545
	SOAK.	40,600	147,600	2,000°	113%	11,674,530	12,258,256	57,990,980	393	5,481,000	6,193,530
	(Total)	73,600	(137 Hrs.)			25,827,930	27,119,326	101,647,522		10,044,000	15,783,930
2-A	W.S.	15,800	374,400	600°	300%	8,532,000	8,958,600	18,261,761	49	2,133,000	6,399,000
	O & H	60,600	489,600	1,500°	125%	18,422,400	19,343,520	72,910,190	149	8,181,000	10,241,400
	SOAK.	24,423	144,000	2,100°	35%	4,444,986	4,667,235	22,977,145	160	3,297,105	1,147,881
	(Total)	100,823	(280 Hrs.)			31,399,386	32,969,355	114,149,096		13,611,105	17,788,281
2-B	W.S.	10,200	223,200	600°	316%	5,728,300	6,014,736	11,683,885	52	1,377,000	4,351,320
	O & H	58,800	403,200	1,500°	84%	14,605,920	15,336,216	57,805,737	143	7,938,000	6,667,920
	SOAK.	17,102	129,600	2,100°	39%	3,209,190	3,369,649	16,589,041	128	2,308,770	900,420
	(Total)	86,102	(210 Hrs.)			23,543,430	24,720,601	86,078,663		11,623,770	11,919,660

Masonry Building

A monthly section of Brick & Clay Record devoted to the use of the end product and the relationship between the manufacturer, dealer and contractor.

They Need Your Support

Show Your Dealers the Way And They'll Produce for You

By ROY E. SCHUMACHER

The forces that motivate salesmen and move goods are basically the same, whether you're selling brick or baking powder. This is not particularly earth-shaking as a statement, because in every sales situation, people are involved, and people tend to respond to approximately the sames sales stimuli.

People select a particular product out of a group of similar products simply because they have been convinced of the certain benefits it will give them. What it doesn't say is what happens between the time the product is made available, on shelves or in warehouses, and the ultimate purchaser.

Similar sales-inducing benefits apply whether a manufacturer sells direct to the consumer, through an intermediate dealer or distributor organization, or both. The manufacturer can usually handle the sales situation pretty well when he is dealing directly with the purchaser. It's when he has to rely on a shaky dealer-distributor organization that he frequently throws up his hands in dismay.

The dealers look nice as colored pins on the wall map but, he asks himself, aren't they really handlers rather than a part of the sales team? Aren't they just sub-warehouses more than anything else?

The answer is too often yes in both cases, unless the manufacturer has taken the time to look at the problem from the local level—and, even more local than that—from the level of the dealer's pocketbook.

In this connection, the same benefits that bear on sales effort apply to a brick dealer as to, say, a grocery store manager. The grocery man is willing to stock a certain line of canned goods because,

1. It is well advertised in newspapers and at the point of sale.
2. It is priced realistically.
3. The manufacturer offers him a quantity discount which provides added incentive to raise sales above a specified volume.
4. It is good quality merchandise.

Quality

Quality, while named last, is, of course, not the least important consideration. But, frankly, the product is probably matched in this respect by a number of competing brands. What the grocery man is actually buying from this manufacturer is the monetary incentive to get interested in the product and the idea that he won't have to do all the selling himself. His customers will be pre-conditioned to buy these goods through advertising before they step into his store. And, as the volume of these goods goes above a certain rate, he makes more profit per case.

These forces are set in motion by the manufacturer, who realizes he paves the way for the ultimate sale by providing the incentive that will attract the manager's specific interest in his line. Interest, in this case, being the initial opportunity afforded the manufacturer to occupy shelf space in the store, plus the chance to help the manager sell the goods. He provides a program to get the product sold at a profit for himself and the store manager.

Common Denominator

With some modifications, a brick manufacturer can work with his dealers along similar lines. To begin with, we have a powerful common denominator: the brick dealer is also vitally interested in the state of his pocketbook.

Let's assume this dealer handles your building brick along with four or five other brands of comparable quality and price. A school building is to be constructed in the dealer's area with the specifications to be written by a local architect. There is no assurance the architect will specify brick and there is a chance he may

specify a glass and steel structure.

Now, among this dealer's several brick suppliers is a manufacturer who, the dealer is aware, is accustomed to applying basic sales principles to the situation. So he contacts this manufacturer and outlines the situation and asks for help.

Incentive

What benefits, real or imagined, have caused this dealer to single out this particular manufacturer for this deal. In the first place, the manufacturer has set this dealer up on an incentive basis that gives him the opportunity to earn more than his normal profit when he exceeds a certain volume. The dealer has been armed with plenty of attractive brochures featuring brick construction and written specifically for architects. Sales letters supplied by the manufacturer are available for mailing to the architectural firm with his signature. These letters stress the advantages of brick in school construction and cite pertinent case histories.

The dealer also has available the sales and technical help of the manufacturer's representative on calls to the architects, or others involved in the sale. Finally in back of these dealer benefits, this manufacturer has consistently used the broad prestige-building and selling power of product and/or institutional advertising in selected trade media. Included in his schedule have been architectural magazines. Thus, the manufacturer's products are a known quantity even before the local contact is made.

In the dealer's mind, this program seemed like the best in terms of support, and therefore the best bet that he would wind up with something extra in his pocketbook. The two important benefits that influenced the grocery man have also influenced the brick dealer—the key prospect would be pre-conditioned for the sale and that there would be added incentive for added efort.

Added Volume

The manufacturer's benefit derives from the fact he is assured of a local dealer sales contact that will stay right on top of the deal. This kind of effort, multiplied by his other dealer markets, enables him to get the added volume that more than pays for his dealer incentive program.

An example of good dealer-manufacturer relations was illustrated recently when Marion (O.) Brick Co. flew all its dealers to the plant sites for a visit and sales meeting.

This, of course, is a hypothetical sample of how a manufacturer and dealer might cooperate on a selling program. We might also present some hypothetical answers as why things that have worked elsewhere will not work with brick dealers . . . "it wouldn't work with our dealers. They handle too many other products . . . couldn't give us the necessary time"; or, "our dealers are mainly lumber yards and material handlers. They aren't ready for anything like this . . . it wouldn't pay off"; or, " it would be cheaper and more effective to go direct rather than mess around with the dealer."

Common Problems

If your thinking runs along these lines, the changes are pretty fair that you're supporting dealers or distributors that act mainly as local stock points. They have ceased to perform the legitimate dealer function, which is to sell, and therefore it might be good economic grounds to discontinue them in favor of direct sales or other representations.

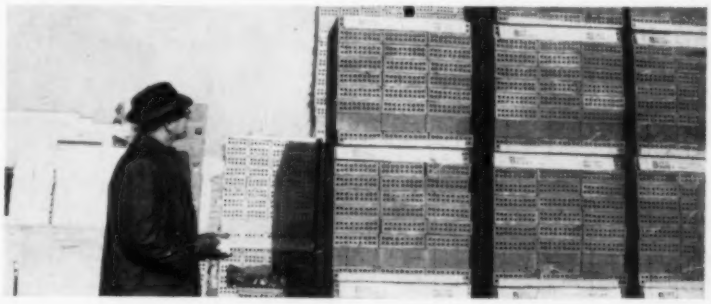
The point is, if you have to live with them—if they are worth keeping at all—then they should not be allowed to continue as roadblocks to the sale of your products. This economy rewards aggressive action at the local level as evidenced by the many companies who enjoy strong and important dealer sales. These concerns have never let up on promotional efforts for the dealers. They have found that sales through the right kind of dealers respond in proportion to the time and selling tools given them.

Incentive Promotions

There are countless incentive promotions that are getting the job done in fields immeasurably more complicated than the building brick business. The dead weight of non-productive dealers argues for attention to promotional education and upgrading to acceptable standards—in short, adoption of modern marketing methods.

The manufacturer who backs up the dealer and this distributor organization with effective tools and programs, and who insists on certain standards of performance is the one who earns dealer respect. Respect is what attracts and holds top dealers, the kind who will function as effective sales partners with you . . . who also will give you the selling edge over competitors—right at the grass roots.

Inventory should be kept at the dealer's yard to aid in maintaining an adequate flow of products from manufacturer to dealer. This exemplifies good practice.



Should You Buy That Truck—Or Lease It?

By A. J. SCHOEN
President, Wheels, Inc.
Chicago, Ill.

There are about 240,000 trucks on long-term lease to manufacturers, distributors and retailers. By contrast, there are about 6,800,000 tucks owned by American industry. In the brick and clay industry, the proportions are: 400 leased, and about 6,000 company-owned.

The major reason for the small number of leased trucks, is that until recently, truck leasing was not available without expensive maintenance provisions. That is to say, a company could not lease a fleet of trucks without paying for full maintenance care on these trucks—whether the firm wanted the full maintenance or not. As a result, truck leasing by industry has lagged far behind auto fleet leasing mainly because auto fleets are available on a non-maintenance lease basis, as well as with full maintenance.

The news that a few major leasing companies will now offer non-maintenance, long-term truck leasing, will make a vast difference to many businesses. The accompanying interview with an expert in this field, describes the new trend.

Q. What's the drawback to truck ownership?

A. There is no drawback. Truck ownership is a fine luxury which most brick and clay producers enjoy—whether they can afford it or not. The fact is, ownership of a truck fleet takes liquid capital out of a business and freezes the cash in fixed assets. Not many companies can afford to do this—but they do.

As every businessman knows, a company's earnings are determined by the amount of the company's liquid working capital and the number of times within the year this working capital is turned over profitably. A successful business tries to keep its working capital active in current operations—and not tied up in fixed assets.

Q. Normally, how much does working capital earn?

A. Depending on the industry, profits on liquid working capital range from 20 to 90% before taxes. That means 10 to 45% after corporate taxes.

Typically, in the brick and clay industry, the average profit before taxes is 29% on working capital. Every dollar of working capital currently employed in the business brings back 29c profit before taxes. Which means that if a brick manu-

facturer takes that dollar out of working capital and freezes it in fixed assets (for example, a truck fleet), the company is reducing its annual profit by 29c. If the company uses $100,000 of its working capital to purchase a truck fleet (to use round numbers), the company is giving up before-tax profits of $29,000 in the first year alone—because that is what the working capital could earn if left working in the business.

It is for that reason that truck fleet ownership is a luxury. Actually, few of the brick firms which own their fleets can afford the luxury. The obvious solution would be for a company to lease a truck fleet. In this way the company could have the benefit of conserving its own working capital, and at the same time, having a fleet under its own control to do its hauling. Unfortunately, this has not been true in the past. Until recently, no company could lease a truck fleet without full maintenance provisions—which often made leasing costs too high for most companies.

Leasing Plans

Q. *What kinds of truck leasing plans are now available?*

A. There are two different plans:

1. The Finance Lease—Under this plan a company leases its trucks and nothing more. This is new to the truck leasing field. Under this plan, companies are not obligated to pay for any services other than leasing of the trucks.

2. The Full Maintenance Lease—This is the plan which was typical of leasing trucks up to now. Under this plan the leasing company provides trucks, garages, maintenance, repairs, cleans the trucks—does everything but supply the driver.

Under both types of leases, trucks are engineered for the job by the leasing companies.

Q. *What the the advantages and disadvantages of the finance lease plan?*

A. The finance lease is new to trucking and is offered only by major truck leasing organizations. The finance lease is a lease of trucks only, and is not encumbered by maintenance or service charges.

In the finance lease plan, the truck fleet is purchased by the leasing company, delivered to where it will be used, and leased for a term approximating the estimated life of the equipment. For light trucks, 40 months is typical; for heavy trucks, tractors and trailers, longer terms are usual.

Advantages of Finance Lease

The basic advantage of the finance lease is that it offers the lessee the main advantage of leasing—conservation of working capital—while leaving him free to obtain economy in operation and to provide himself with the maintenance and service plan best suited to his fleet.

Thus, companies which already have facilities for garaging trucks, or parking lots, can obtain the benefit of leasing without wasting their present facilities. Other companies are able to service their truck fleets with maximum economy by using a local truck agency service—such as Chevrolet agencies for Chevrolet trucks, etc. A company is thus able to conserve its working capital by leasing its trucks, but is not compelled to pay a leasing company for maintenance services which may be obtained at lower costs, or may be unnecessary.

Where piggyback equipment is concerned, companies can lease their trailers, use the special low rates available to private carriers, and move their products by rail, thus effecting further economies.

Another advantage of the finance lease plan is that leasing charges are based on the fleet discount price of the trucks, and not on the retail list price. Thus the lessee obtains the benefit of the leasing company's ability to purchase vehicles at the lowest possible price. Even with cancellation, the lessee pays only the fleet discount price.

A. J. Schoen

However, the finance lease plan offers no advantages for companies in the following situations: where company trucks operate over punishing terrain with utmost wear-and-tear; or where perishable products are moved by truck, and extra trucks must be available for instantaneous emergency; or where *all* truck expenses (including maintenance and repair) must be budgeted in advance. In these three special situations, the full maintenance lease is more advantageous than any other.

Special Value to Company

The finance lease plan is of special value to companies with the following types of fleet operations:

a. For a company which has truck parking facilities and can save money by using local maintenance and repair organizations.

b. For company service trucks or service industry trucks which normally do not get very rough treatment.

c. For department store delivery units based on warehouse near parking space.

d. For over-the-road trucking operations based on regional plants or warehouses located so that traffic management can avoid deadhead trips longer than one day.

e. For companies whose freight has large bulk but little weight, and thus is expensive to ship by common carrier.

f. For companies whose trucks are engaged in long hauls and hence not available for nightly servicing at a central depot.

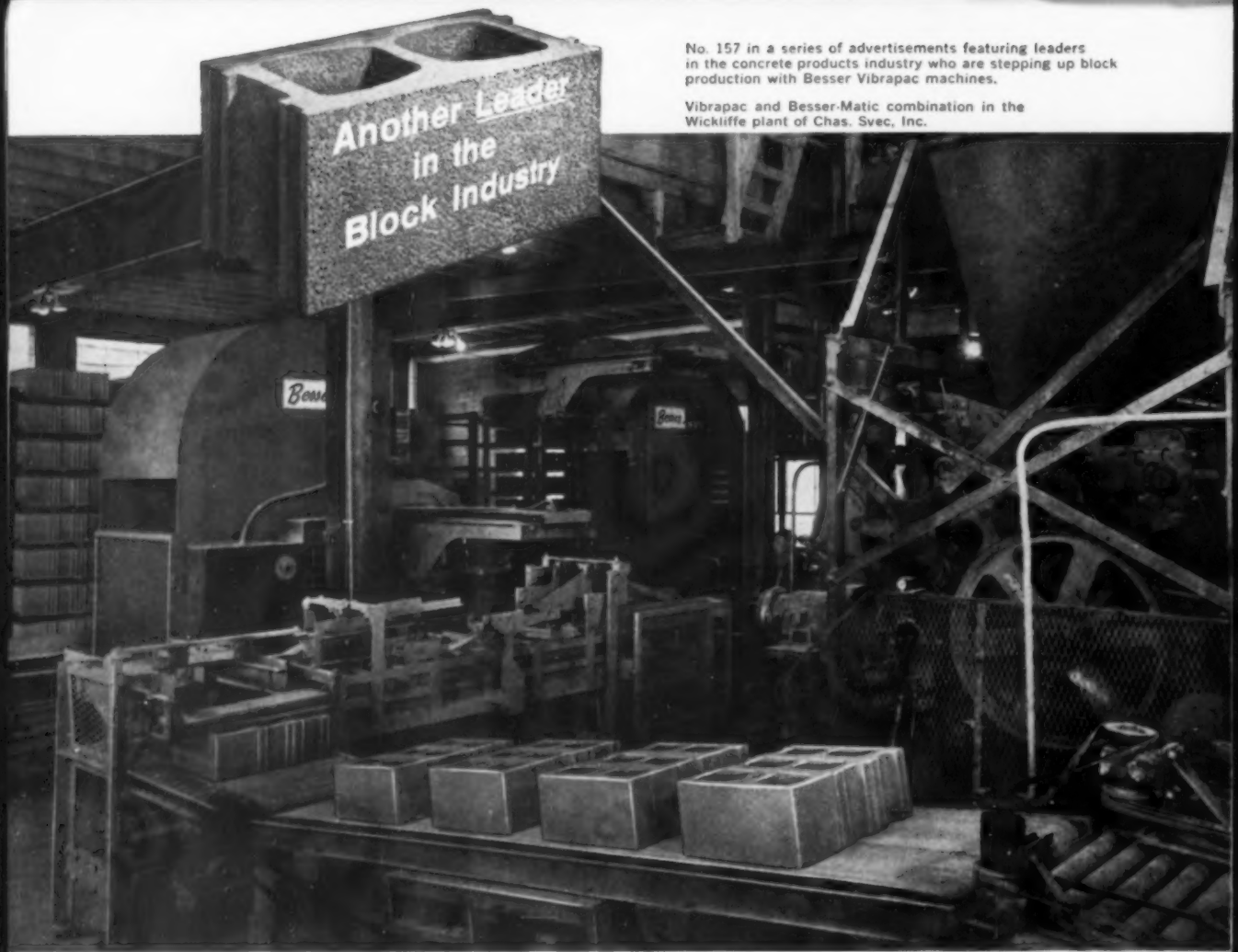
Book Published

(An objective examination of the whole problem of truck leasing, including comparative cost charts, has been published by the Foundation for Management Research. It is entitled, "Truck Fleets: Lease or Buy? An Analysis of Truck Transportation Costs". Single copies are available free to executives who write to the Foundation at 121 W. Adams St., Chicago 3, Ill.)

(*Continued on page* 68)

No. 157 in a series of advertisements featuring leaders in the concrete products industry who are stepping up block production with Besser Vibrapac machines.

Vibrapac and Besser-Matic combination in the Wickliffe plant of Chas. Svec, Inc.



Long-established Ohio blockmaker calls Besser Vibrapac

"the only machine I could ever make any money with!"

Father-and-son team that makes Chas. Svec, Inc. the successful operation that it is: (left to right) Dean Svec, Treasurer; Charles Svec, Jr., Vice President; Charles Svec, Sr., President.

Ever hear of a block plant without delivery trucks to keep up and repair? Or without a sales staff? Chas. Svec, Inc. of Cleveland, Ohio has neither. They sell all of their block through wholesalers.

That's one way they keep overhead down. Another way is by using Besser equipment in their two plants at Maple Heights and Wickliffe, both in the Cleveland area. In producing lintels and concrete block for basements, commercial and industrial buildings, and swimming pools, the company operates three Vibrapacs, two equipped with Besser-Matic automatic unloading.

It is Svec's policy to give their wholesaler-customers whatever they demand in various types of block. If Svec doesn't have the proper molds, they get them. Like many other quality-conscious blockmakers, they have found that you can bank on Besser for the best in block at the bare minimum of maintenance costs.

Are *you* completely satisfied with your daily output? . . . your profits? . . . your position in the competitive market? If not, follow the example of many successful blockmakers and switch to Vibrapac. Talk to the Besser representative about this now.

BESSER *Company*

Dept. 139, Alpena, Michigan, U. S. A.

First in Concrete Block Machines

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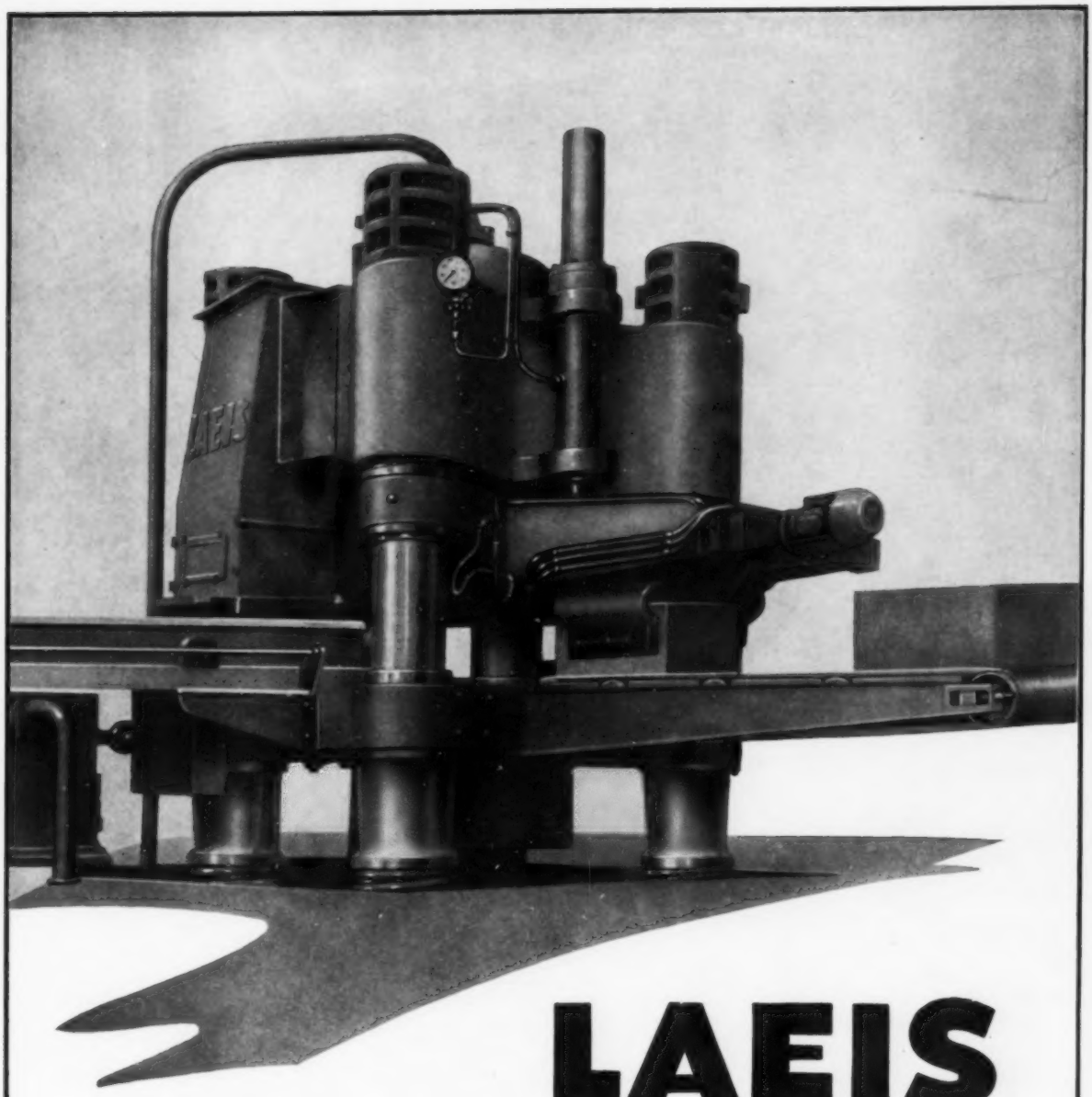

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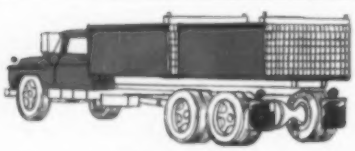

TANDEM

PACK-GRAB

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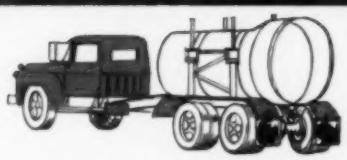
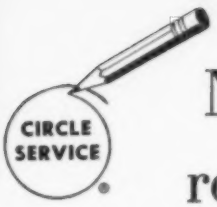


PIPE-HAULER



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Use this valuable service to obtain complete information about the many products available to you. Send us one card now and save the second card for later use.

Brick & Clay Record
5 So. Wabash Ave.
Chicago 3, Illinois

1	13	25	37	49	61	73	85	97	109	121	133	145	157	169	181
2	14	26	38	50	62	74	86	98	110	122	134	146	158	170	182
3	15	27	39	51	63	75	87	99	111	123	135	147	159	171	183
4	16	28	40	52	64	76	88	100	112	124	136	148	160	172	184
5	17	29	41	53	65	77	89	101	113	125	137	149	161	173	185
6	18	30	42	54	66	78	90	102	114	126	138	150	162	174	
7	19	31	43	55	67	79	91	103	115	127	139	151	163	175	
8	20	32	44	56	68	80	92	104	116	128	140	152	164	176	
9	21	33	45	57	69	81	93	105	117	129	141	153	165	177	
10	22	34	46	58	70	82	94	106	118	130	142	154	166	178	
11	23	35	47	59	71	83	95	107	119	131	143	155	167	179	
12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	

NAME _____ TITLE _____

COMPANY _____

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Permit No. 183
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BUSINESS REPLY MAIL
No Postage Stamp Necessary If Mailed In the United States

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Brick & Clay Record
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3	15	27	39	51	63	75	87	99	111	123	135	147	159	171	183
4	16	28	40	52	64	76	88	100	112	124	136	148	160	172	184
5	17	29	41	53	65	77	89	101	113	125	137	149	161	173	185
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7	19	31	43	55	67	79	91	103	115	127	139	151	163	175	
8	20	32	44	56	68	80	92	104	116	128	140	152	164	176	
9	21	33	45	57	69	81	93	105	117	129	141	153	165	177	
10	22	34	46	58	70	82	94	106	118	130	142	154	166	178	
11	23	35	47	59	71	83	95	107	119	131	143	155	167	179	
12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	

NAME _____ TITLE _____

COMPANY _____

STREET _____

CITY _____ ZONE ___ STATE _____

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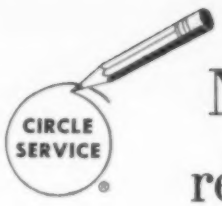

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Use this valuable service to obtain complete information about the many products available to you. Send us one card now and save the second card for later use.

Brick & Clay Record
5 So. Wabash Ave.
Chicago 3, Illinois

Three Basic Factors . . .

(*Continued from page* 51)

longer than it should be. There is more variation in temperature between various points in the setting than there should be.

Kiln repairs cost too much due to the ravaging effect of bottled-heat and the cutting effect of a short intensely hot flame, at high velocity. Down draft kilns are still designed by ancient rules-of-thumbs brought down from the days when it was competitively possible to fire a kiln for 12 to 14 days. These rules are not suitable for firing in 3 to 5 days. They will not accommodate the greater gas volume per second that must pass through a kiln on a fast schedule.

Infinitely More Efficient

Kilns would be infinitely more efficient, and repairs would be less, if they were designed with the proper size of components to handle the volume of gas per minute, or per second, that would be required for fast efficient firing. Almost all down draft kilns could be fired much quicker, and more efficiently, with less temperature gradient at different points, if the various factors that form bottled-heat were re-designed.

The same is true of tunnel kilns. Because tunnel kilns are designed and erected by engineering firms, the plant operator may believe that they have been designed to accommodate the volumes of gases that he will put through them, but they never are. This is due to the fact that the sales engineer for the tunnel kiln and the plant manager do not face realities.

What Always Happens

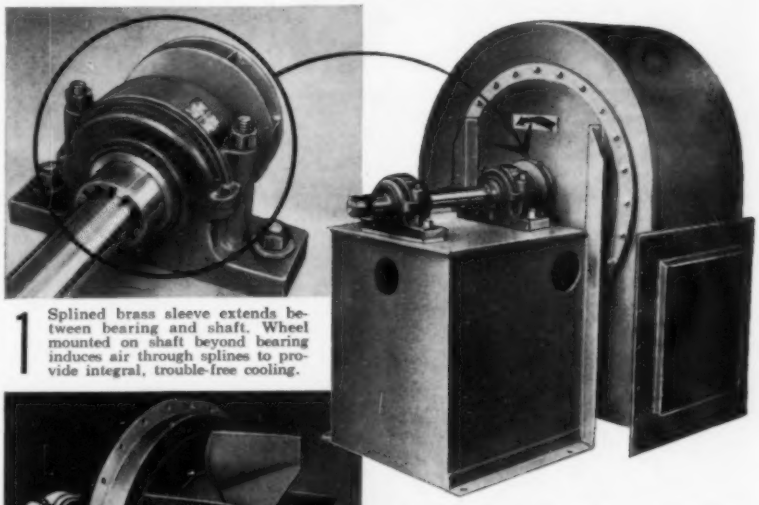
For example this is what always happens. The sales engineer and the plant manager, after much haggling, agree upon a certain kiln, and the sales engineer gives his word that it will burn a specified number of brick each 24 hours. The plant manager gives him an order for the kiln.

At the home office, the engineers design a kiln, for the clay and product to be produced, and for the specified daily capacity. Soon after the kiln is started up the plant manager begins to edge up the daily capacity

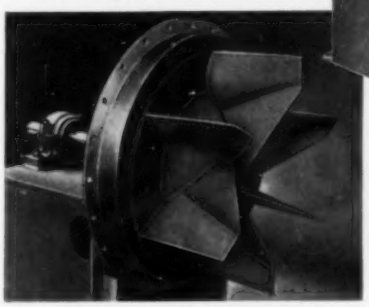
(*Continued on page* 62)

3 *outstanding features make this* ROBINSON EXHAUSTER

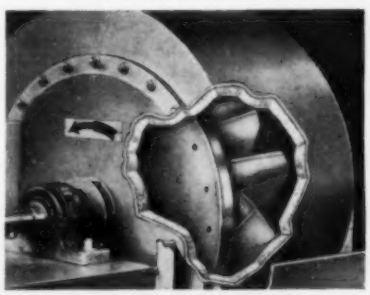
BEST for recirculating hot air in kilns—up to 1650°F.



1 Splined brass sleeve extends between bearing and shaft. Wheel mounted on shaft beyond bearing induces air through splines to provide integral, trouble-free cooling.



2 Cartridge type wheel assembly is removed from the drive side of the exhauster. Inspection and maintenance of both wheel and exhauster is simplified and speeded, without entering kiln.



3 Steel outer skin and alloy inner casing are separated by high-temperature insulating material, minimizing heat loss in kiln air, and reducing heat radiation and conduction to other parts.

Three unusual features—exclusive integral self-cooling, cartridge-type wheel assembly, and carefully engineered use of insulation and alloys—help Robinson High-Temperature Exhausters give unsurpassed efficiencies in recirculating hot air in kilns. These important features are the results of Robinson's long experience in improving air handling procedures in the ceramic industry's high temperature operations.

Because a successful kiln or dryer design depends heavily on proper air handling, Robinson engineers will work in a consulting capacity with your designers and builders. It is added assurance that you will get the most economical and efficient firing and drying facilities.

If you are building new facilities, or refurbishing existing ones, specify Robinson—for superior air handling matched to proper kiln and dryer design.
Write today for literature.

INDUSTRIAL FANS • BLOWERS • EXHAUSTERS

ROBINSON VENTILATING CO.

119 HENDERSON STREET, ZELIENOPLE, PA.

Circle Service No. 31

get
Maximum efficiency
Maximum tonnage
with
SECO VIBRATING SCREENS

SECO True Circular Action is your key to success in screening materials which are damp, sticky or which tend to blind wire cloth openings. Why? SECO's True Circular Action develops a sharper whip—a more positive throw—which dislodges these problem materials. RESULT: More through material, less rescreening and greater tonnages. SECO True Circular Action plus SECO factory-installed wire cloth heaters (above), or ball tray attachment (left), or both, make an unbeatable screening combination. Check into the SECO line of over 450 4-bearing and TWIN BEARING models now!

Send today for 4-bearing Catalog #205 or TWIN BEARING booklet TB-21

Screen Equipment Co., Inc.,
Buffalo 25, New York

SECO
PRODUCER PROVEN
VIBRATING SCREENS

Circle Service No. 32

(*Continued from page* 61)

in order to secure lower cost and meet competition. In a short while after the kiln is in operation it is producing more brick than it was engineered for.

Just for example, a tunnel kiln built in 1946, and guaranteed to produce 20,000 brick per 24 hours is now producing 36,000 brick in 24 hours. Another kiln was to produce 37,000 brick in 24 hours, and is now—five years later—producing 64,000 brick in 24 hours.

These two examples are only typical and most tunnel kilns, after a few years, are producing up to 200% of the capacity for which they were designed. As a result, flues, ducts, and passages are too restrictive for the larger volumes of gases encountered for operation at 150% to 200% of capacity. Consequently streams of gases that are too thin, at velocities which are too high for efficiency and best results, must be forced through the kiln by pressure burners and high draft fans.

Wilson Named Treasurer of Basic

Walter B. W. Wilson was elected treasurer of Basic, Inc., Cleveland, O. succeeding H. P. Ellis, who continues as president. Wilson joined Basic in 1956 after association with the New York Stock Exchange and Brown Brothers Harriman & Co. in New York.

Carborundum Announces Four Promotions

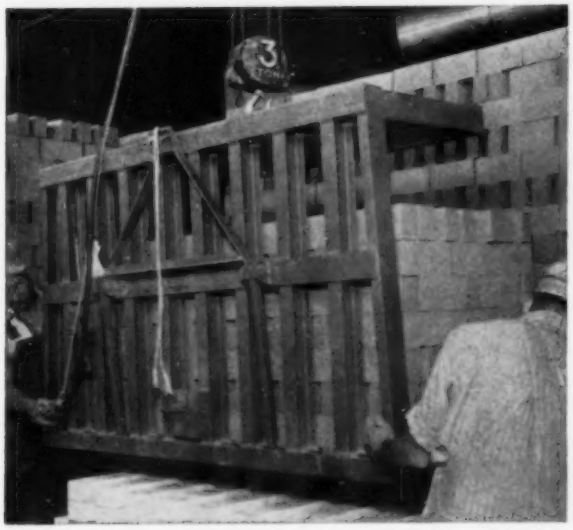
Four management men, Messrs. Arthur A. Turner, Otto R. Stach, Henry M. Killmar and John W. Albright have received broader assignments in Carborundum's Refractories Division according to an announcement by Boyd M. Johnson, vice-president of the company and general manager of the division.

Turner, formerly sales manager, is appointed general sales manager in direct charge of field sales and is responsible in a staff capacity for directing sales functions resident at the Globar and Latrobe Plants and the Ceramic Fiber Project.

Stach, manager-technical branch,

(*Continued on page* 64)

Make Brick Handling Easy...

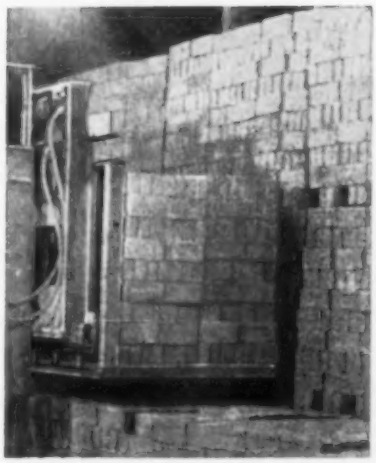


PRIESTER Brick Forks

- Save Time
- Save Money
- Save Labor

Also Priester truck cranes for unloading from delivery trucks. Write for bulletin.

Brick in units of any size are handled by Priester Brick Forks. Automatic operation simplifies and speeds brick handling setting and drawing kilns, loading and unloading trucks and box cars.



Forks with flap grippers for cored and solid brick. Give service . . . take the hard work out of brick handling. Write today for more information.

BRADNEY MACHINE CO., INC.

Middletown, New York

Circle Service No. 33

AMERICAN MINERALS, INC.

P. O. BOX 7248

EL PASO, TEXAS

3666 DONIPHAN DRIVE

Air Floated & Granular Manganese

Now Ready to Supply You With Ground

MANGANESE

To Any Mesh Desired from our Modern Plant

IMMEDIATE SHIPMENTS IN BULK OR BAGS FROM WAREHOUSE STOCK

- HOPPER CARS
- 100 LB. PAPER BAGS

Ore from

AMERICAN MINERALS, INC.

assure you the most complete range of specifications. Consistency and Dependability

"MINE TO MILL TO MARKET"

Circle Service No. 34

BATCHMASTER

CONTROLS H.K. PORTER PASCAGOULA PLANT

3000 LBS BATCHED EVERY 5 MIN

This Howe Batchmaster® automatically controls batching of refractory brick mix from bin discharge to delivery of the mix at the presses in the new Pascagoula, Mississippi plant of the H. K. Porter Company, Inc.

One man operates the console, which combines ingredients from any of 60 bins and turns out repeat batches exactly alike. In brick production, the Batchmaster channels the mix through controlled mulling and automatic delivery to presses. In specialty production, it directs the ingredients to a drum mixer before bagging. The batch formula can be easily changed by turning ingredient dials.

The advantages of automatic batching—effective material control, improved product quality, increased production, lower production costs—can be yours, too. To learn how, write for your copy of the AUTOMATIC BATCHING HANDBOOK.

HOWE®

THE HOWE SCALE COMPANY
RUTLAND, VERMONT

Circle Service No. 30

(*Continued from page 62*)

is in direct charge of all centralized technical functions of the Division as well as the technical functions of the Perth Amboy Plant. In a staff capacity he will direct technical functions at the Globar and Latrobe plants and the Ceramic Fiber Project.

Killmar, manager-manufacturing, in addition to his present duties—will be in direct charge of all functions at the Latrobe plant including manufacturing, technical and sales resident at the plant.

Albright, formerly assistant manager manufacturing is appointed Manager of Globar Plant. He assumes charge of all functions including manufacturing, technical and sales resident at the plant.

National Carbon Co. Enters Refractory Field

National Carbon Co., a division of Union Carbide Corp. announced it has entered the field of high-temperature refractory compounds with the manufacture of titanium diboride shapes of high strength, size and purity. National Carbon said the move was the first of a projected series of high-temperature refractory compounds to be marketed by the company.

New Appointments Announced at Lavino

G. B. Gold, vice president of E. J. Lavino and Co., Phila., Pa., retired after 45 years of service with the company. J. T. Carrol, treasurer and G. T. Stowe, vice president, also retired. New appointments are: J. J. Robinson, B. S. Tucker, F. R. Dykstra, vice presidents; H. N. Hall and R. E. Haynes, assistant vice presidents; A. H. Bergey, treasurer and J. D. Stewart, assistant treasurer.

Marshall New B&W Sales Chief

Wayne T. Marshall, Augusta, Ga., has been named manager of sales for the Babcock & Wilcox Company's Refractories Division, it was announced in New York recently by M. J. Terman, general sales manager of the division.

Marshall, who has been with B & W since 1937, is in charge of the genenreal office sales group at the company's plant in Augusta.

- **Fluorspar**
- **Magnetite**
- **Chromite**
- **Manganese**

We have recently built a completely modern plant in Brownsville, Texas, to process minerals for the brick trade to size and high chemical specifications. Custom grinding facilities are available.

This plant means more efficient service and, as a shipping point for other NP & M products, quicker delivery for our customers in the West and Southwest. It represents another step in our expansion program designed to meet the increasing demand for our wider range of products. Those listed here are all immediately available and will be milled to your requirements.

Our consistent growth over the past 65 years is a measure of the personal service you may expect from us as well as the quality of our products.

NATIONAL "ALWAYS UNIFORM" ESTABLISHED 1904

CONTRIBUTING ASSOCIATE SCPI

NATIONAL PAINT & MANGANESE COMPANY

A division of Howe Sound Co., Inc.

Lynchburg, Virginia

Circle Service No. 36

Parmanco

SPECIALISTS IN AUGER TYPE DRILLS

. . . DRILLS MEAN FASTER MORE ECONOMICAL DRILLING

Model HV-172 Drilling Feature Check List

- Four drilling speeds with reverse
- Drill powered by 65 H.P. motor or 106 H.P. motor
- Heavy duty truck type transmission with 10" truck clutch
- Three leveling jacks to insure straight holes
- Hydraulic feed for fast, smooth, dependable easy operation
- Mounted on 3 wheel chassis or truck
- Drills holes to 100 feet or more

Complete Information on Request

Model HV-172

PARIS MANUFACTURING COMPANY

PARIS, ILLINOIS

Circle Service No. 37

Invest $12 Million . . .

(*Continued from page* 40)

tures rest on about 7950 piles ranging from 60 to 90 feet in length. The L-shaped dock is 566 feet long and 50 feet in width.

Sea Water Chemical Plant

The chemical reaction which is the foundation for the production of magnesia from sea water, basically is a simple one involving the reaction of a soluble magnesium salt to recover it as an insoluble magnesium precipitate. It can be shown as the reaction of soluble $MgCl_2$ (sea water) with insoluble $Ca(OH)_2$ (burned, slaked lime) to yield insoluble $Mg(OH)_2$ and soluble $CaCl_2$. The actual operating techniques are more involved.

The sea water process requires three raw materials in addition to normal requirements of heat, power, etc. These are sea water, a source of lime, in this case dolomite, and fresh water.

The chemical plant is large, both physically and in the amount of raw materials used. The plant requires 342 tons of dolomite daily and pumps about 13,250,000 gallons of sea water and 720,000 gallons of fresh water every 24 hours.

Major equipment in the chemical plant includes three rotary kilns varying in length from 170 feet to 300 feet and in diameter from 8 feet to 11 feet. They use approximately 2,500,000 cubic feet of natural gas per day. The processing tanks are round and vary from 60 feet to 300 feet in diameter.

Brick Plant Smaller

The brick plant is smaller than the chemical plant in size only. Nearly all brick operations are housed in a single building measuring approximately 360 feet by 250 feet. The height of the building varies in different working areas from 24 to 80 feet.

Storage facilities for major raw materials outside the plant include covered bin space for 2000 tons of periclase briquettes, a concrete storage pad 250 feet square for 35,000 tons of crude chrome ore, and covered bin space for 750 tons of coarsely crushed ore. Inside of the plant there is bin space for approximately 1,000 tons of screened fractions of chrome ore and periclase.

The plant capacity is about 80,000 tons per year of which 18,750 tons are specialties. Brick capacity is about 11,000,000 brick equivalents yearly.

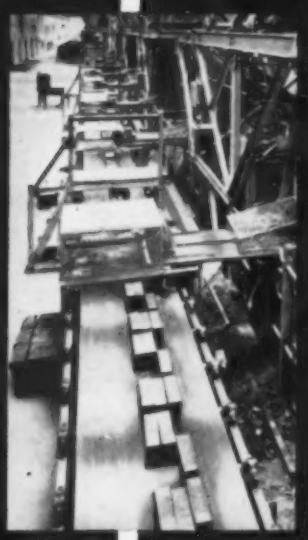
Major Raw Materials

The two major raw materials for the manufacture of brick are chrome ore and periclase. Minor raw materials include clay, iron oxide, sodium silicate, and Epsom salts. The chrome ore used in brick is the Masinloc Phillipine refractory grade. This is the standard ore for basic brick in this country. Chrome specialties contain this and other ores from places such as Southern Rhodesia, the Transvaal area of South Africa, India and other countries.

Under Porter's supervision, the new plant was constructed by the Austin Co., Houston, Texas. Ralph Rose is manager, basic products; R. G. Vervaeke is works manager and J. G. Bartel is general superintendent.

Why SANDVIK STEEL BELT CONVEYORS

Stay Trouble-Free For Decades



In brick and clay plants throughout the world, there are Sandvik conveyors that have been giving successful service for twenty years and more.

Biggest factor in these service records is the inherent stamina of Sandvik's solid, cold-rolled steel belt. It can take *oil, heat, moisture, friction, impact* and *heavy loads* and keep on running smoothly year after year.

Sandvik supplies complete conveyors, steel belts and pre-engineered conveyor components. Write for further information.

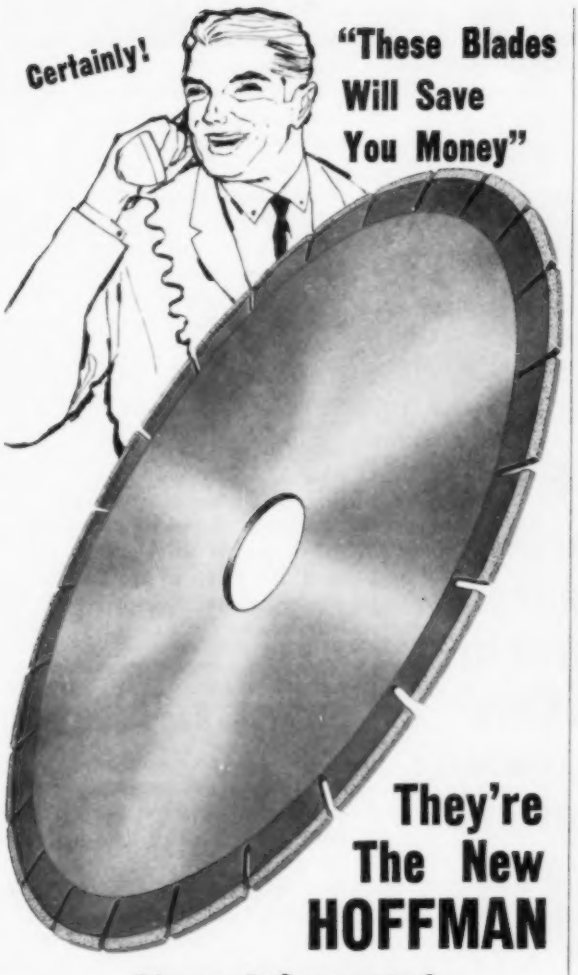
SANDVIK STEEL, INC.
Steel Belt Conveyor Department
1702 Nevins Road • Fair Lawn, N. J.
Cleveland • Detroit • Chicago • Los Angeles

SANDVIK STEEL BELT CONVEYORS

65-211

IN CANADA: Sandvik Canadian Ltd., P. O. Dr. 1335, Sta., O., Montreal 9, P. Q.

Circle Service No. 38



They're The New HOFFMAN

Diamond Segmented CIRCULAR SAW BLADES

They cut through practically every abrasive material known . . . frequently do the job in a fraction of the time required with ordinary equipment. Hoffman Segmented Blades are currently setting new production records in sawing hardest concrete, chrome, granite, silica brick, marble, Monofrax®, KX-99®, Zae®, Findley Clay® and many others. Fast, accurate sawing is producing new production techniques . . . holding processing costs to a minimum.

Hoffman Saws are available in 14 different cutting edge matrix bonds . . . each one produced to do a specific cutting job best. Accurate diamond impregnation plus special segment design assures fast cutting. Under correct power consumption and fluid control. Customer's material samples tested At No Charge to determine best Hoffman Saw for a particular job.

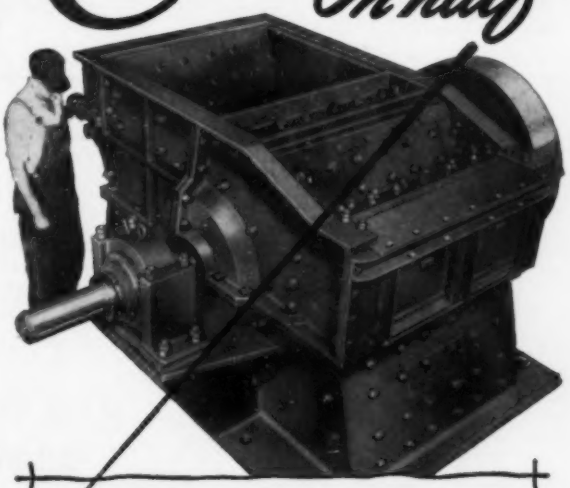
Write for Illustrated Literature and Prices—*FREE*. Ask for data on other Hoffman Diamond Products.

HOFFMAN BROS. DRILLING CO.

Cedar Street **Punxsutawney, Pa.**

Circle Service No. 39

CUTS CRUSHING COSTS *In half*



•WILLIAMS HEAVY DUTY Hammer Mills

Finish grinds bank run clay and shale in *a single operation*—including hard lime particles, iron pebbles, tailing of all kinds. *Saves up to 75% of capital investment* by eliminating primary or secondary crushers, conveyors, elevators, extra drives, expensive foundations, housing and other equipment . . . *saves up to 50% on production cost*, cuts labor, upkeep, power, parts replacement, other profit-eaters!

No crusher built will stand up better under rugged continuous service. Extra heavy manganese steel breaker plates and liners—larger diameter shafts—other massive wear-resistant parts and reinforcements—all promise much greater return on every dollar invested in a Williams.

Send For Fact-Filled Catalog

ASK FOR DETAILS ON OTHER WILLIAMS EQUIPMENT

ROLLER, IMPACT and DRYER MILLS for fine and micron size grinding . . . HELIX-SEAL HAMMER MILLS for grinding dusty, wet and sticky materials . . . AIR SEPARATORS for high output at precision fine grinding . . . VIBRATING SCREENS, open or closed, for any size job . . . COMPLETE "PACKAGED" PLANTS ready to install in existing buildings.

WILLIAMS PATENT CRUSHER & PULVERIZER CO.

2709 N. BROADWAY **ST. LOUIS 6, MO.**

Circle Service No. 40

Truck Leasing . . .

(*Continued from page 55*)

Q. What are the advantages and disadvantages of the maintenance lease plan?

A. For companies which need the particular benefits available under maintenance leasing, there is nothing finer. For example, under the full maintenance lease, the leasing company provides the trucks and garages, maintains, services, and repairs vehicles, supplies replacement vehicles in the event of breakdowns, etc. The lease is for the estimated life of the equipment. The company supplies only the drivers and traffic manager to control fleet operations.

The advantages of this lease plan are:

a. Company capital is conserved for other uses.

b. The headaches of maintenance, replacement, and repairs are transferred to the leasing company.

c. Quick additions or substitutions of trucks to the fleet in emergencies, are part of the lease plan. Normally, the leasing company provides one standby truck for every 10 trucks in service. This tends to justify the extremely high charge for maintenance leasing.

The full maintenance lease has proven most economical and efficient for companies which have a large number of trucks operating in a restricted local area and which need daily if not hourly maintenance service. Such companies as dairies, breweries, producers or distributors of all sorts of perishables, need immediate maintenance and stand-by service.

Availability of round-the-clock maintenance service is vital in some industries—but why should a producer of steel, or machine tools, or textiles, or the vast gamut of non-perishable commodities, pay for such emergency maintenance and stand-by service, if the company doesn't need it? Only a small percentage of companies actually need such daily maintenance and emergency stand-by services.

Three Disadvantages

The full maintenance lease has four major advantages, as we have seen above. However, there are three disadvantages which have limited its growth:

a. The cost per mile, considering all fixed and operational costs, is 15 to 20% higher under a maintenance lease than under a non-maintenance (finance lease) lease. Since lessees are apt to misuse trucks under a maintenance lease, the leasing company must add a large margin for maintenance, repairs and service—whether they are needed or not.

b. The cancellation clause which, if used, forces the lessee to purchase the trucks, paying the full difference between the original *list price* of the vehicles and the (straight line) depreciated value.

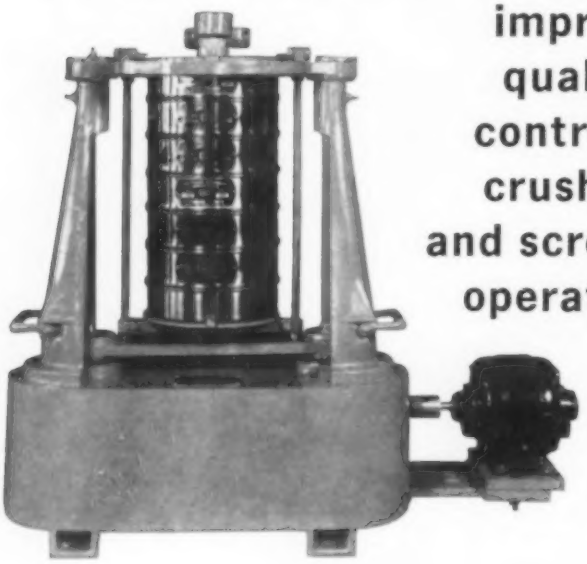
c. In the instances where drivers must report first to the leasing company's garage for their vehicles and then to their company plant for goods, the cost of portal to portal pay is wasteful and expensive.

Q. When is a company-owned truck fleet desirable?

A. A company-owned fleet is the most common solution to a company's transportation problem—judging from the fact that 62% of all the

(*Continued on page 70*)

TYLER TESTING SIEVES



improve quality control of crushing and screening operations

Tyler Testing Sieves are used worldwide as a standard method of classification of granular materials—particle measurement from less than two-thousandths of an inch up to two or more inches is possible. They improve quality control of your screening operations, permit standardization between different plants. Tyler Sieves can be used with Ro-Tap shaker (shown above), by portable, or by hand-operated shaker. *Write for new booklet 608* describing testing equipment, and covering latest A.S.T.M. testing sieve specifications. The W. S. Tyler Company, 3615 Superior Avenue, Cleveland 14, Ohio.

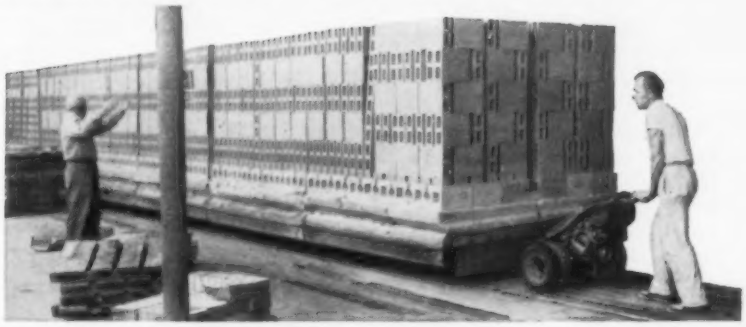
TYLER

WOVEN WIRE SCREENS • SCREENING MACHINERY • TESTING SIEVE EQUIPMENT

Circle Service No. 41

GRAVELY KILN CAR TRACTOR!

PUSHES COSTS DOWN!



MOVE LOADED CARS WEIGHING OVER 100,000 POUNDS!

The 6.6 hp Gravely "Kiln Car" Tractor is specially adapted to move your cars in and out of tunnel kilns, spot to off-bearing belts or storage areas.

Gravely engineered the new tractor exclusively for brick and ceramic plant use, after serving the industry for years. The tractor features a customized Front Hitch to fit *your* cars! Many other special features.

INDUSTRIAL USERS SAY

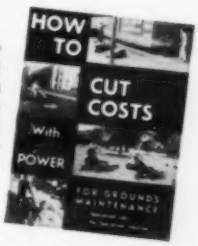
Having used Gravely equipment for many years, members of the brick industry report that:

(Gravely) "is small enough to get around among the crowded tracks, yet powerful enough for the job of moving the cars." R. R., Jackson, Miss. "We like the versatility of the Gravely, and its ease of handling." W. S., Charleston, W. Va. "We can recommend it (Gravely) very highly to other manufacturers in the industry." A. L., Gorham, Maine.

YEAR-ROUND TOOLS!

Extra Dividend! The same Gravely Tractor powers 30 year-round ground maintenance tools, including 4 mowers, 9 ground preparation and 5 snow removal tools. Interchangeable—4 bolts out, 4 bolts in . . . change jobs! Keep your plant grounds attractive at lower cost.

FREE LITERATURE—DEMONSTRATION! Send for special "Kiln Car Circular" and "How To Cut Costs For Grounds Maintenance" catalog. They contain on-the-job pictures and detailed information on Gravely Equipment. Ask about a Free Demonstration!



GRAVELY TRACTORS
P.O. BOX 649-A, DUNBAR, W. VA.

Circle Service No. 42

Profitable MATERIAL HANDLING with EHRSAM

BELT CONVEYOR

The Ehrsam line of Conveyor Rolls fills a definite demand for a conveyor that will combine dependable high performance with low maintenance cost for maximum profit. Ehrsam Conveyor Rolls are available in any belt widths with many styles and heights. For additional information write Department B for your catalog 2-A.

TRIPPERS

The Ehrsam Tripper is designed for top performance. It is easily serviced. Most working parts are accessible, yet protected for the operator's safety. All spouting is engineered to give full capacity discharge. Many styles of trippers are available, and can be designed to suit your special application.

The J. B. Ehrsam and Sons Mfg. Co.
Enterprise, Kansas

SALES OFFICES:
KANSAS CITY, KANSAS
PHOENIX, ARIZONA
CHICAGO, ILLINOIS
SAN FRANCISCO, CALIFORNIA
HASTINGS, NEBRASKA
FORT WORTH, TEXAS
GOLDEN, COLORADO

Circle Service No. 43

(*Continued from page* 68)

trucks on the road are company-owned. The remainder are either owned by common carriers, contract carriers, railroads, government, farmers, or are leased. The primary virture of company ownership of truck fleets is presumed to be lower cost. But what most companies overlook is the cost of capital invested in their truck fleets.

As we have seen, when a brick producer takes $100,000 out of working capital and freezes it in a truck fleet, this company is sacrificing $29,000 in before-tax profits the first year alone. When this sum is added to the other costs of company-owned fleet operation, then company fleets are often the most expensive form of transportation.

There are only two kinds of situations where there is justification for use of company capital in acquiring a truck fleet: (a) the company has more liqud working capital than it needs in the business, and can spare the cash for trucks; (b) the company's return on working capital is so low that it does not pay to lease in order to obtain additional capital.

However, where a company can use not only its present working capital but additional working capital in the business, it would be foolish to freeze part of the company's cash in a truck fleet. Truck fleets are available without investment of company capital. They can be leased, as we have seen. True, up until now truck fleets could not be leased without expensive full maintenance. But this is now changed. The finance lease makes truck fleets available without any extra trimmings.

Other Alternatives

Q. ***Suppose a company didn't want to own or lease its trucks, are there other alternatives?***

A. The first alternative is common carriers; the second alternative is contact carriers. By using either one, a manufacturer takes himself out of the transportation business.

The use of common carriers is economical in these situations:

a. Where distances involved are so great that deadheading (a return trip with an empty truck) takes longer than one day.

b. Where a company's merchandise commands a low rate from common carriers.

c. Where the company's trucking volume at any one time is too small to justify use of owned or leased trucks.

These conditions apply to many smaller firms, as is witnessed by the fact that the common carriers employ fewer than 10% of the trucks on the road, but move more than 30 % of the goods carried in trucks.

The disadvantages of common carriers are three: their use is quite expensive; they may not be able to do the job desired; and by use of common carriers, a corporation loses control over delivery of its goods. However, common carriers solve the transportation problems for many companies.

Contract carriers are somewhat different. More or less, they charge the same rate as common carriers, and they can give better service in a small territory. For example, a manufacturer may have 100 delivery

(*Continued on page* 71)

Tabor "350" machine applies squeeze and jolt simultaneously while molding super refractory at Richard C. Remmey Sons Co., Philadelphia subsidiary of A. P. Green Fire Brick Co.

New Type Jolter Increases Refractory Production

—better compacting, smoother finish

The Tabor "350" replaces pneumatic rams, and hydraulic presses in the molding of refractories — cylinders, saggers, recuperator tubes, shelves, furniture, intricate shapes.

When the mold has been filled, a pre-jolt settles the particles, and starts the squeeze-jolt operation — a 12,000 lb. squeeze combined with continuous hammering by a 525 lb. anvil, striking at 7 blows per second.

Faster, more efficient than ramming. No need for expensive press equipment.

For superior orientation of grains, improved lateral flow, smooth and even surface finishes, investigate the Tabor "350". Call or write us today.

TABOR
TRADE MARK

TABOR MANUFACTURING CO.
Division of Turbo Machine Company
LANSDALE, PA.

Circle Service No. 44

(*Continued from page 70*)

points in a limited area or state. A contract carrier would charge much lower rates to make all these stops than would a common carrier. A contract carrier is very close to its client manufacturers and works only for a limited number of clients.

But the contract carrier is limited in the variety of commodities it can carry, and is hobbled in its rate-making. A contract carrier would be economical to use under certain special conditions:

a. The contract carrier has a permit to carry the specific commodity which the manufacturer wants to ship.

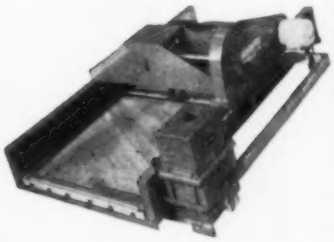
b. There is no long-haul merchandise which requires interline trans-shipping.

c. The manufacturer requires a large number of delivery stops within a limited territory.

d. The freight is in large, annual volume, fairly regular, and within the limited territory of the carrier.

Under these conditions, a contract carrier is efficient and satisfactory —and would obviate any need to invest cash in company-owned trucks.

Superior Screening at Low, Low Cost



THE Leahy NO-BLIND VIBRATING SCREEN

— offers —
INTEGRATED HEAT SCREENING

First class screening of clays and shales at exceptionally low cost is made possible by the Leahy® Screen with Flex-Elex® jacket heating.

By keeping the mesh dry and wide open, screened products are uniformly sized on long, hard work schedules. Stopping for beating or other mesh-clearing operations is virtually unknown. Even slightly oversize wedging particles are dislodged by the exclusive Leahy differential vibration that snaps them loose 1600 times per minute. This is indeed a screen pronounced by experienced engineers to be trouble-free and far ahead of the field in profit-making potential. Send for Bulletin 16-EH.

THE DEISTER CONCENTRATOR CO., INC.
The Original Deister Co., Est., 1906
913 GLASGOW AVENUE FORT WAYNE, INDIANA

Circle Service No. 45

GRAY BRICK BEAUTIES

made with Foote EBONY Manganese

Air floated Foote EBONY Manganese Ore—*famous for more than 30 years as the industry's No. 1 gray coloring agent*—gives outstanding color uniformity to a variety of gray brick formulations. The consistent and extreme fineness of this material produces flat gray shades that are free of specks and patches of lights and darks. The shades produced in different parts of the kiln are so uniform that sorting is usually unnecessary.

Write for complete details on EBONY Manganese Ore, PETALITE, and Foote's many other ceramic materials.

FOOTE MINERAL COMPANY
442 Eighteen West Chelten Building
Philadelphia 44, Pa.

Circle Service No. 46

AVOID COSTLY INJURIES

LONG-WEARING TUFHORSE MITTENS AND PADS GIVE EXTRA PROTECTION

Tufhorse KANT-RIP

DES MOINES GLOVE & MFG. CO.
Des Moines, Iowa

Increase the output of your men. Protect their hands with Tufhorse hand pads, gloves or mittens. Made of heavy, durable cowhide, Tufhorse Kant Rips are flexible, tough, help men work faster.

MAIL FOR FREE SAMPLE

Des Moines Glove & Mfg. Co.
Des Moines, Iowa

Please send free sample of your (.....) hand pad, (.....) glove, (.....) mitten for testing. (Specify which one you want).

Name .....
Position in Co. .....
Address .....
City .....
State .....

Circle Service No. 47

Classified ADS

Limited to Want Ads, Consulting Engineers, or Used Equipment ads, (wanted or For Sale)

TRANSIENT WORD ADS: 15c per word for each insertion.

Headings such as "Wanted", "For Sale", etc. and address to be counted as part of the ad. Minimum charge $3.00 each insertion.

POSITION WANTED ADS: $3.00 for 25 words or less; each add'l word 15c.

FOR USE OF BLIND ADDRESS: (Care of BRICK & CLAY RECORD) count as 15 words to cover cost of handling and forwarding replies.

DISPLAY-BOX TYPE ADS

$18.00 per inch. On advance orders for twelve consecutive issues, $15.00 per inch per insertion. (No retroactive adjustment).

An inch is measured vertically on one column, 2⅛" wide; three columns on a page. For a two-column advertisement add together height in each column.

Display classified advertisements are set and rates apply in half-inch multiples. (1 inch minimum; 5 inch maximum).

Add 25% to above rates for Reverse Plate (white lettering on black background).

All rates based on payment in advance except on regular contract.

No Agency Commission or Cash Discount

BRICK and CLAY RECORD

A CAHNERS PUBLICATION

5 S. Wabash Ave., Chicago 3, Ill.

WANTED—HELP

PROGRESSIVE Midwestern face brick manufacturer needs experienced face brick superintendent for tunnel kiln operation. Address Box 1-BAF, care of BRICK & CLAY RECORD.

FLORIDA Distributor of nation's top refractory manufacturer offers exceptional opportunity and working conditions for aggressive ambitious sales engineer. Must have minimum three years successful experience selling refractories to various industries. Forward resume to McDuffie, Industrial Equipment Company, Orlando, Florida. Prompt, confidential replies.

Triple A-1 Company desires a man 28-35 years of age—aggressive and interested in sales and developmental work. Preferably college graduate but primary requirement is strong sales personality and thorough knowledge of brick and clay manufacturing operations. We offer an outstanding opportunity and secure future in rapidly growing industry. Headquarters location in Pittsburgh, Pa. Some traveling required. Remuneration includes salary, car and expenses—plus numerous other benefits.

Please send complete resume to

Box 2-BAS care of

Brick & Clay Record

An immediate interview will be arranged.

POSITION WANTED

POSITION WANTED by a graduate Engineer in the Heavy Clay Products Industry as temporary assignments. 20 years experience in Geological exploration and mapping, raw material survey, plant design and layout, Research and Development, Combustion technology. References. Per Diem basis only. Address box 9-ABN, care of BRICK & CLAY RECORD.

SALES Manager with refractory contacts in all steel mills located in Illinois—Indiana—Ohio—Missouri and Pennsylvania. Twenty five years experience in refractory sales and installations to steel industry and major consumers also combustion experience. Licensed professional engineer in state of Illinois. Write Box 2-BAP care of Brick & Clay Record.

Manager 41 graduate Ceramic engineer capable, industrious, able to assume responsibilities. 15 years experience structural clay products, expanded shade products, and refractories. Tunnel kilns and periodics. Write Box 2-BAO care of Brick & Clay Record.

SPECIALIST in brick distribution sales and promotion. Knowledge of construction and licensed engineer. Will consider relocating in Middlewest preferred. Write Box 2-BAR care of BRICK & CLAY RECORD.

MARKETING MAN—Executive background top concerns, advertising agencies, brick and industrial products. Sales motivating programs—sales promotion, merchandising, advertising, communications, dealer distributor relations. Creative, responsible, mature. Best references. College. Address Box 1-BAM, care of BRICK & CLAY RECORD.

WANTED

WANTED:—Two Used Brick Dryer Transfer Cars 24" Gauge. M. K. Frank, 480 Lexington Ave., New York 17, New York.

Wanted to buy—Side dump pit cars—36" gauge—3 or more years capacity—The Galena Shale Tile & Brick Company, Galena, Ohio.

Wanted to Buy—Single Roll Crusher. Must be in good condition. State condition, size, price and where it can be inspected. Write Box 2-BAT care of Brick & Clay Record.

FOR SALE—USED EQUIPMENT

For Sale—4,000 and 12,000 gal fuel oil storage tanks fine condition—Diesel Generator set—125KA—Fairbanks-Morse—First Class operating condition shovel—1 yd. Marion, Gas—electric—$2,500.00. Scoop attachment for LT 60-Towmotor. The Galena Shale Tile & Brick Company, Galena, Ohio.

FOR SALE Chambers Royal Brick Machine with De-airing and extra parts. Watsontown Brick Company, Watsontown, Pennsylvania.

FOR SALE: 2 crawler shale planers, 6' & 9' Dry and 8' Wet Pans. 250 Dryer Cars 24" ga. Six Komarek Greaves Briquetting Presses. Intl. Vac-Air Steele 30, 40, 50 deaired Brick Machines. Boyd 4-mold and Gates 2 mold Dry Presses. Boyd Dry Press Installation. Ladd Cronin Circular 70' dia and other Tunnel Kilns. 4 x 30, 4 x 40, 8 x 125 Rotary Kilns. 4 x 6, 5 x 9, 5 x 17, 5 x 21', 8' x 36" Ball Mills. Dixie 2024, 5060 Hammermills. Mid-Continent Equipment Co., 8321 Gannon, St. Louis 32, Mo. Wydown 1-2826.

J. C. Steele #4A Disentegrater completely rebuilt W/New Rollers 15 H.P. Motor $1,500.00
J. C. Steele Cutter #18 Fair Condition ..$1,000.00
J. C. Steele #8SC Even Clay Feeder W/Motor & Drive Assembly Fair $2,000.00
1-Meco Dryer Induction 54" Fan Complete W/10 H.P. motor, Louvers, Inspection Doors $ 550.00
18 Tons 25# Rail Good Condition ....$ 120.00

BUNKER HILL BRICK CO.
7620 Washington Houston 7, Texas

WALTER C. STOLL & SONS

New and Used
CLAY WORKING
MACHINERY

5028 Alhambra Ave., Los Angeles 32, Calif.
CApitol 2-1141

RAILS—TIE PLATES

Frogs & Switches
Track Accessories

W. H. DYER CO., INC.

1810-B Railway Exchange Bldg.,
St. Louis 1, Mo.

JUST PURCHASED!

1—Traylor 8' x 80' rotary dryer, ⅝" welded.
1—Symons 2' shorthead cone crusher.
2—Bonnet 7' x 60' rotary dryers, ⅝" shell.
2—Davenport 8' x 60' rotary dryers, 7/16" welded shell, comb. chambers, burners.
2—8' x 56' rotary kilns, ½" welded.

IN STOCK
ROTARY DRYERS & KILNS

1—Vulcan 10' x 11' x 175' rotary kiln.
3—National 10' x 78' rotary dryers, ¾".
2—Hardinge 8'8" x 70' rotary dryers, ⅝".
1—8' x 60' rotary kiln, ½" welded shell.
2—8' x 56' rotary kilns, ½" welded shell.
2—Stearns-Roger 8' x 40' rotary dryers.
1—7'6" x 62' rotary kiln, ½" shell.
1—6' x 7' x 100' rotary kiln, ⅞" shell.
1—Louisville 6' x 50' rot. steam tube dryer.
2—4'9" x 32' rotary dryers, ⅜" shell.
1—Ruggles-Coles 5'6" x 40' rotary dryer.
1—3'6" x 21' rotary dryer, ⅜" shell.
1—Standard 3' x 23' rotary dryer, ¼".
1—12" x 8' stainless steel dryer on stand.

PERRY EQUIPMENT CORP.
1432 N. 6th St. Phila. 22, Pa.
POplar 3-3505

DESIRABLE EQUIPMENT
AT REALISTIC PRICES

Crushers and Hammer Mills
Muller type Mixers-Mills
Rotary Dryers and Kilns
Sifters, Screens, Separators
Filter Presses and Filters
Ball & Pebble Mills
Raymond Imp Mills, All Sizes
Presses and Pellet Machines

Send for "First Facts"

FIRST MACHINERY CORP.
209-10th St. Bklyn. 15, N.Y.
ST. 8-4672; Cable "Effemcy"

ONE Steel Model 20-E combined auger de-airing machine and one Model 20-E.
FIVE assorted brick dies, ' hollow tile-patio die and roman brick die.
ONE, Steel No. 40-E combined de-airing machine
ONE, Real Hand cutter.
ONE, Steel No. 18 Automatic Cutter.
ONE, International De-airing Combined Falcon, with extra liners knives, pinion shaft resurfaced augers—good condition.
ONE, American Automatic No. 858 Automatic Electric Cutter good condition.
TWO Fernholtz 48" cage type ulverizers, one SK.F. bearing the other water cooled babitted bearing, all good condition.
ONE, No. 1 and No. two Paird Pot Machines with seven pot dies, all good condition.
ONE, Model W.6422 4½ x 4 twin cylinder water cooled Quincy Vacuum Pump excellent condition.
ONE, 4' x 40 ft/horizontal refractory lined dryer with stack combustion chamber 5½ hp. motor gear reduction drive Johnson oil burners, good condition.

FERNHOLTZ MACHINERY CO.
8468 B Melrose Place, Los Angeles 46, Calif

FOR SALE—About 6,000 used steel pallets in varying conditions for pipe rack dryers. Size 33 in. by 9½ in. weighing about 11¾ lbs. and made of ⅛" metal. The ends are beveled to slide over pipes. Will sell whole lot at 40 cents each, F.O.B. our plant. OLD VIRGINIA BRICK COMPANY, INC., SALEM, VIRGINIA.

FOR SALE—USED EQUIPMENT

DE-AIRING MACHINES—FRH (PA4) 3HP—FRH (PR6) 7½HP—J. C. Steele 50 Special, 15" auger 100 HP—Bonnot 18" auger 150 HP—American (801) 18" auger 200 HP

CUTTERS—Automatic Reel—J. C. Steele #18—Freese P25, 10" belt—Chambers #10, Roman & Norman brick

PUG MILLS—9' Freese—10' American (2nd shaft)—15' Granulators Freese/Chambers

DRY PANS—7' American—9' Bonnot—2 American 418 grinders

DRYERS—24" x 24"—3' x 24'—5' x 40'—6' x 20'—7' x 58' (50 HP gearmotor)

CRUSHERS—DISINTEGRATING—18" x 16", 24" x 12"—30 x 16—24 x 30

LAWLER COMPANY

Metuchen, N. J. Liberty 9-0245

FOR SALE—USED EQUIPMENT

DEAIRING BRICK MACHINES—Steele, Bonnot, American
PUG MILLS—8' American, 10' Brewer, 10' American Double Shaft
GRANULATORS—Chambers #51 Freese P-16
CUTTERS—Chambers, Steele #18 & Hand
DRY PANS—7' & 9'
HAMMER MILLS—Many Sizes
SMOOTH ROLLS—12", 18" & 24"
CONICAL ROLLS—Chambers & Brewer
DISINTEGRATORS—12", 16", 24"
JAW CRUSHERS—Many sizes
GYRATORY CRUSHERS—Allis Chalmers #5

LAB EQUIPMENT—PUG MILL, MIXERS, CRUSHERS, KILNS, BLENDERS

FEEDERS—5' Disc, Apron, Reciprocating
ROTARY DRYERS—24" x 22', 36" x 30', 48" x 30', 60" x 40', 6' x 50', 7' x 60', 8' x 115'
DRY MIXERS, Lancaster SKG, #3, #4, Simpson #3 Clearfield #610
SIGMA BLADE & RIBBON MIXERS—Several
SCREENS—Hummer 3' x 5', 4' x 10', Cedar Rapids 3½' x 10', Single, Double, Triple Decks
HARDINGE CONICAL MILLS—4½', 6', 8'
BALL & PEBBLE MILLS—Many Sizes
PYROMETERS
SLIP LAWNS—Crossley Double Deck
HAND TILE PRESS

LIST YOUR SPARE EQUIPMENT WITH US

ROBERT L. CLARE

212 Rector St. Perth Amboy, N. J.
Phone Hillcrest 2-0061

250 Chase Double Deck Cars
250 Single Deck Cars
Rails and Accessories

M. K. FRANK

Grand Central Place,
New York 17, N. Y.
401 Park Bldg.,
Pittsburgh 22, Pa.

1—2500 capacity Fontaine Brick Body, not mounted
1—5000 capacity Fontaine Brick Body, not mounted
1—5000 capacity Fontaine mounted on 450 GMC truck
1—American 404-A Brick Machine with de-airing features removed
1—Gleason Portable Shredder with slinger belt assembly—good condition.

Tri-State Brick & Tile Co., Inc.

P. O. BOX 9787, Jackson, Miss.
Phone: EMerson 6-6485

FOR SALE—USED EQUIPMENT
Surplus Mine Equipment

1—6-ton Greensburg Storage Battery Locomotive—36" Gauge—Complete with Battery Charger.
1—Joy Mine Fan #X785—36" Diameter, 30,000 Cu. Ft. P.M.—with 10 HP motor attached.
1—Single Drum Sullivan Mine Hoist—250 Ft. per minute—Complete with 40 HP motor, 3 phase, 60 cycle, 220/440 Volt.
1—Model #2171 Toledo Mine Scale—10,000-lb capacity—5-lb Graduation—No springs.
1—Hydraulic Rail Bender for 30-lb—40-lb Rail.
2—Jeffrey Type A-6 Mine Drills.

SUPERIOR CLAY CORPORATION
UHRICHSVILLE, OHIO

Side Dump Cars: 120—1½, 2, 3 and 12 Yards
Gasoline Locomotives: 4, 6, 8 and 14 tons
Diesel Locomotives: 6, 10, 25, 45, 65 and 80 tons
Smooth Roll Crushers: J. C. Steele 12" and 18"
Automatic Cutter: Freese Model C-25
Rotary Dryers & Kilns: 4'x20', 5'x30', 5'6"x50', 80"x60', 6'x120', 7'x180', 8'x125", 10'x200'

WANTED—Air Compressors—Dryers—Locomotives

R. C. STANHOPE, INC.
603 42nd St. New York 17, N. Y.

FOR SALE—Type 6 Fate-Root-Heath Brick Machine with extra strength steel driving gears and pinions. Now in operation making 86,000 brick in 8 hours. Will be available in 30 days. Will be surplus because of change-over to new brick making production line. Approximately 200 Chase Dryer Cars, 100 Single deck, 100 Double deck. Priced to Sell. Southside Brick Works, Inc., P.O. Box 927, Richmond 7, Virginia.

FOR SALE—Steele 40 De-Airing Combination Brick and Tile Machine—Eagle Dry Pan—Raymond Dry Pan—Steele End Cutter—Steele No. One Brick Machine. Bill Taylor, Sulphur Springs, Texas.

For Sale: Crossley Oval Jigger $150.00, Steveco Labmill $75.00, Rogers Electric Kiln $85.00, 7 Portable Agitators, 4 Large "BUFFALO" Blowers. Industrial Products Co., Box 276, Wellsville, Ohio.

FOR SALE—PLANT

FOR SALE—Brick plant, seven periodic kilns. Has manufactured both fire brick and face brick for Midwestern market. Plant located in West central Indiana. Faculty in excellent condition, price low for quick sale. Address Box 12-ABZ, care of BRICK & CLAY RECORD.

GOOD Small modern brick and tile plant. Large deposit dark and light burning clay; extra good year round market territory. Address Box 1-BAL, care of BRICK & CLAY RECORD.

MISCELLANEOUS

FOR SALE—Cone 34 Calcined Flint in lump or ground form and cone 36 High Alumina Nodular Clay. Union Minerals, Inc., 2306 First Natl. Bank Bldg., Pittsburgh 22, Pa.

FOR SALE—BUFF BURNING FIRE CLAY, lump or ground. Ask for prices at mine or delivered via truck or railway. Boos & Co., Macomb, Illinois.

T. W. GARVE, P.E.
69 W. Welsheimer Rd.
Columbus 14, Ohio
Engineering Service. Clay Testing
DRYERS & KILNS TO FIT
We have designed every type of kiln for every kind of fuel and ware, TO FIT.

For Sale—Lower Kittanning buff burning plastic Fireclay. Mine run, crushed, or ground. Consolidated Clay Mines Negley, Ohio.

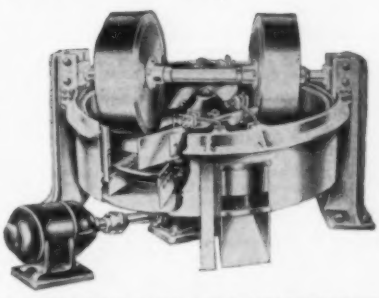
F. J. FORD
Representative—Engineer
Clay Working Machinery
Car Tunnel Kilns—Dryers
P.O. Box 537, Dallas, Texas
P.O. Box 690, Whittier, California

FLINT CLAY—P.C.E. 34-34—Crude or ground —For sample & analysis, write Consolidated Clay Mines—Negley, Ohio.

Call FERNHOLTZ First!
Fernholtz Machinery Co., 8468 Melrose Pl., L.A. 46
OL 3-2360

Clearfield's New Model 900 Dry Pan

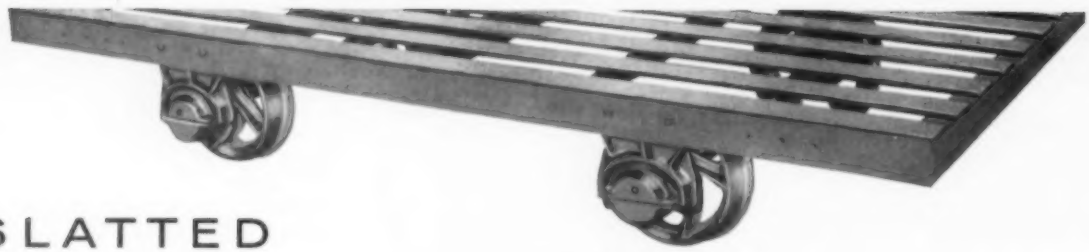
The new high-efficiency Model 900 Dry Pan by CLEARFIELD assures lower production cost and easier maintenance with its totally-enclosed direct motor drive. The new model comes in 8½ or 9-foot diameters. Vibration is reduced, less power needed, and maximum crushing area is covered per revolution. All parts durably constructed for long-life service with minimum maintenance.



Ask for free bulletin 900DP-BC 10

FERNHOLTZ MACHINERY CO., 8468 MELROSE PLACE, LOS ANGELES 46, CALIFORNIA

Circle Service No. 48



SLATTED TO SUIT YOUR SITUATION

There's a Chase Dryer Car style suitable for handling every type of ware from heavy clay to porcelain.

Standard Chase Dryer Cars can be adapted to suit your special requirements. Variations in length, width and deck style are available at little or no additional cost, depending upon how extensive the changes are.

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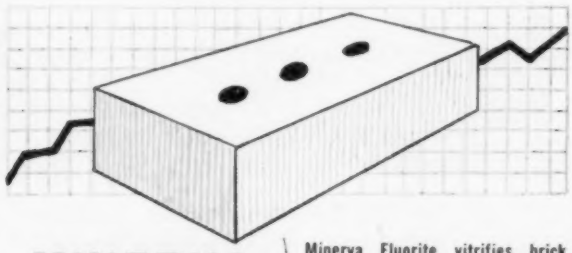

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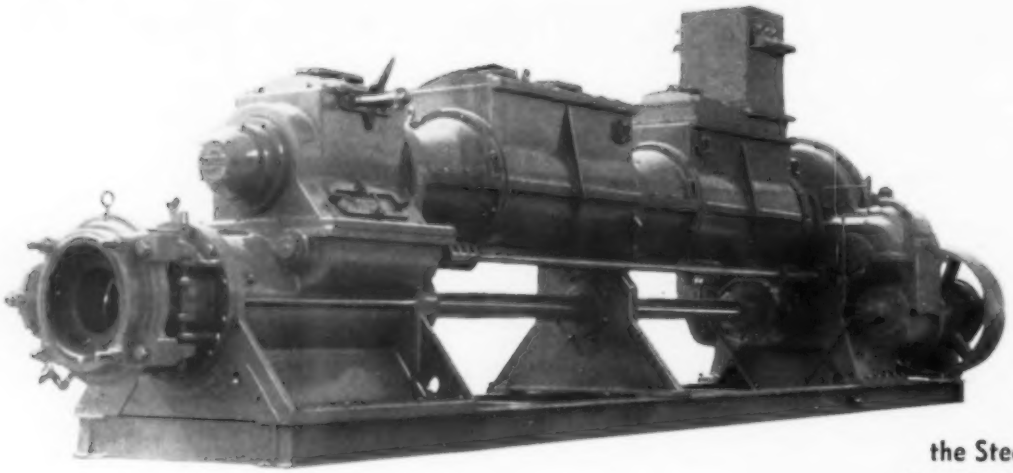

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for Compact and Economical Vacuum Pugging

The 60FDV shown above pugs twice, seals and shreds twice, and de-airs twice. The effectiveness of this intensive preparation has been proved beyond doubt in the many installations of the 60FV machine with 50F Pug Sealer shown on the small illustration below.

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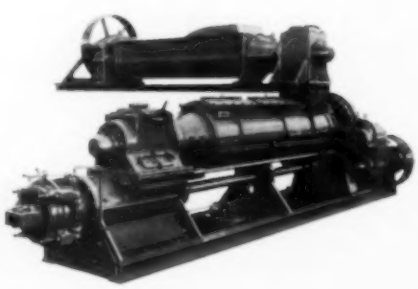
The 60FDV has two completely independent drives. The upper shaft (both pug mills and both sealing augers and shredders) is powered with 150 HP through double reduction gearing. The lower (extrusion auger) shaft, also equipped with double reduction gears, can handle 200 HP of continuous loading. The 60FDV is thus a *separate drive* machine requiring only *one* foundation level.

The two pug mills are each 5'2" long. Where even moderately favorable conditions of clay consistency and moisture content exist, the new 60FDV can provide all of the tremendous advantages of the 60FV-50F plus savings in height, savings in floor space, and the elimination of one complete drive.



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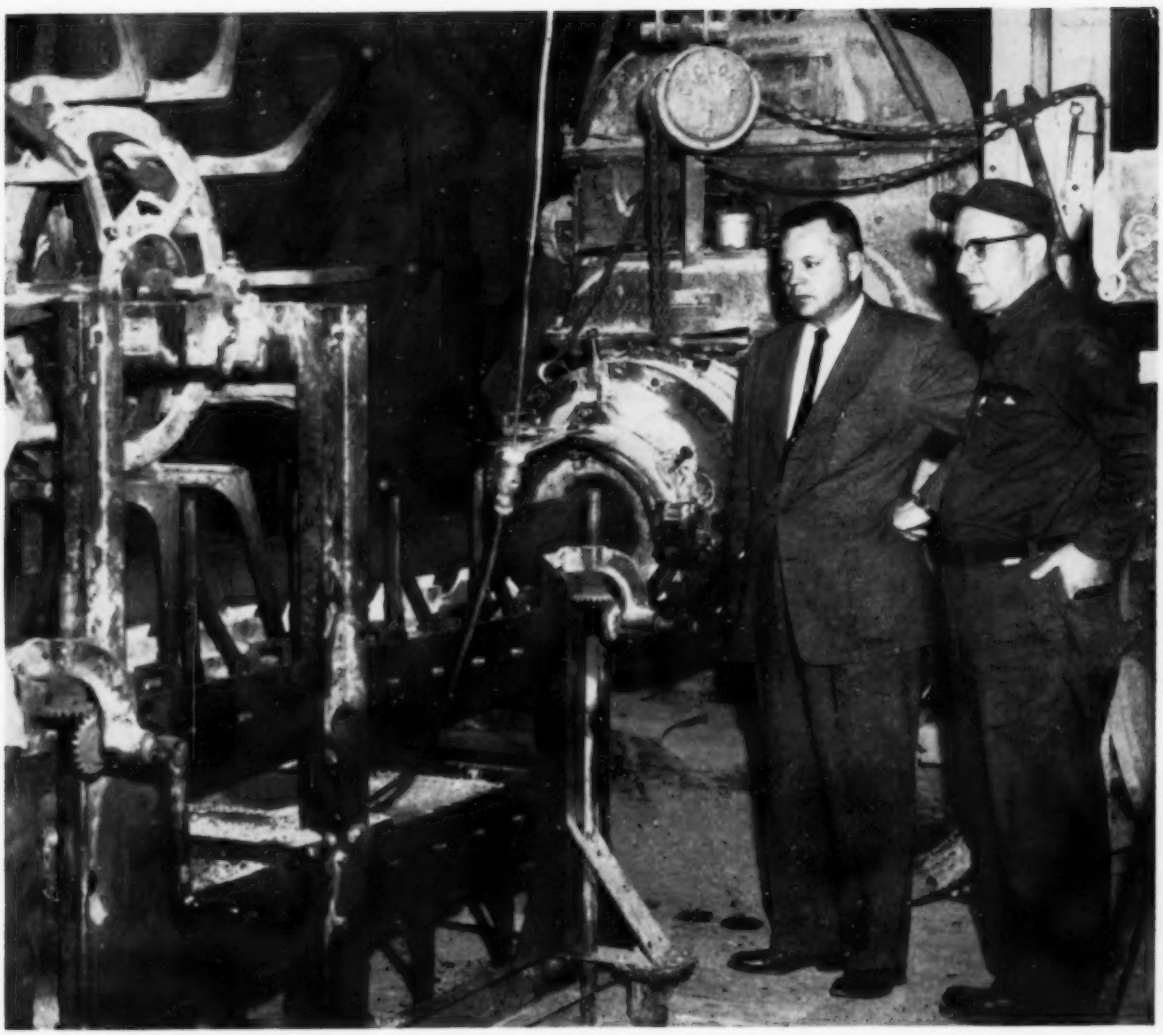

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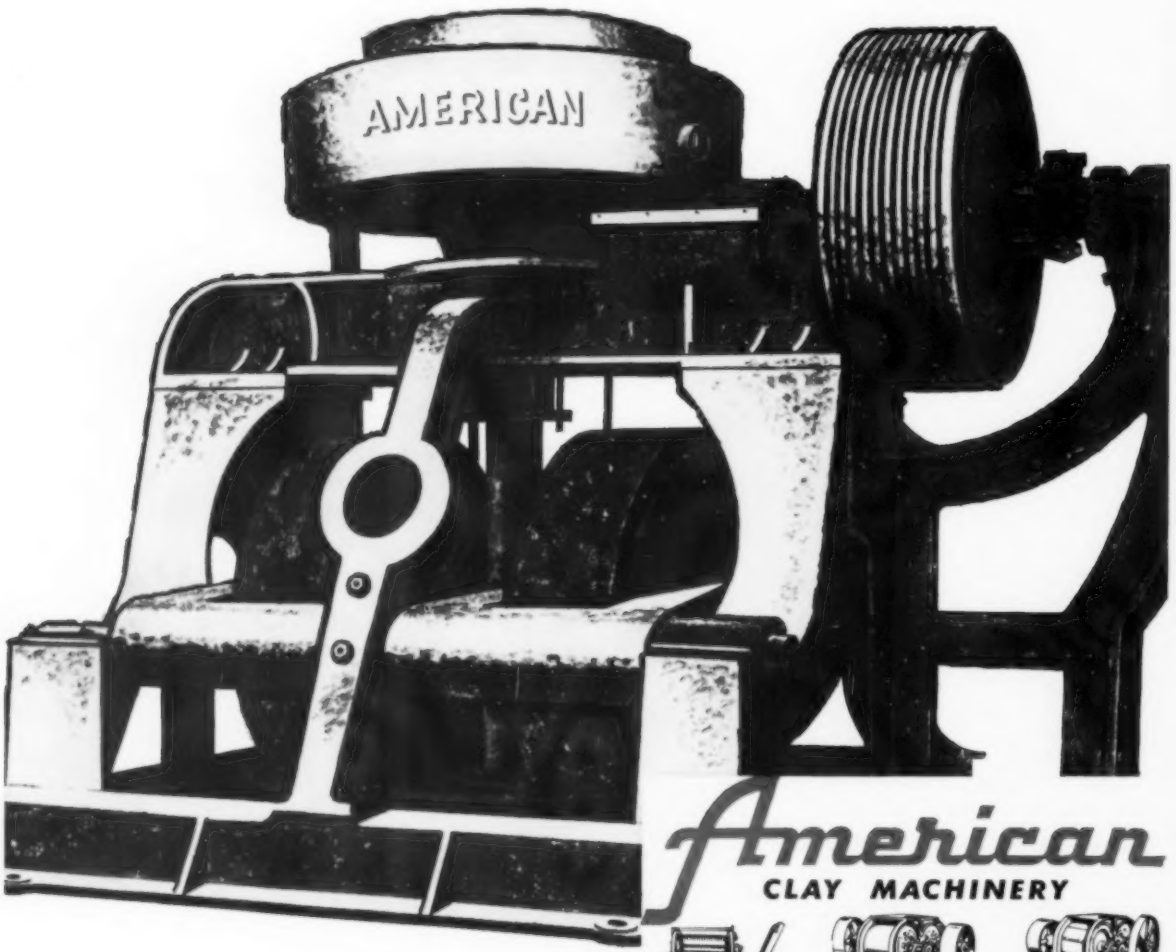

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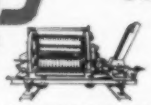
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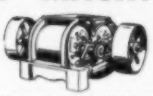
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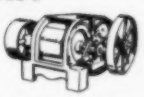
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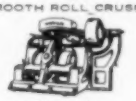
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